

THE MEDICAL JOURNAL OF AUSTRALIA

VOL. II.—34TH YEAR.

SYDNEY, SATURDAY, DECEMBER 27, 1947.

No. 26.

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MODERN TRENDS IN BRITISH PSYCHIATRY.¹

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It is with considerable humility and not a little trepidation that I approach the task of presenting to this meeting the changed face of British psychiatry. Even if one's orientation were correct and one's energies were accurately directed, sheer physical limitation would prevent, in the short space of fifteen months, observation of more than a few facets of what is, after all, a gigantic multifaceted structure. I have, though, attempted to round off my necessarily inadequate impressions with a review of the literature. Mental deficiency is not discussed, as my experience in this field was minimal.

It is only just over ten years ago since most mental hospitals in England, within my experience, could be considered as asylums in the truest sense of the word, providing refuge not only for patients, but also for doctors, who enjoyed the life of country gentlemen, unhurried and unburied, and in a state of complete self-centred isolation. Morel's "doctrine of degeneracy" had left a residual pessimism which still coloured the attitude towards mental hospital patients, and although Freud's enunciation of psychopathological mechanisms had given a new hope to psychiatry, no practical application of his doctrines to the management of the psychoses could be observed. Mott's work on constitutional endocrinopathy had been by-passed; Graves's and Cotton's theories of focal sepsis in the aetiology of mental disorder had received little substantiation, though they had resulted especially in much unnecessary ear, nose and throat surgery, which a few young enthusiasts were still carrying

out, probably in the vain endeavour to overcome the feeling of frustration engendered by the general atmosphere of the mental hospital as it existed at that time. Research was mainly along biochemical lines, but little had resulted from this endeavour since it was scanty, scattered and non-coordinated.

By the grace of God and the natural history of disease processes, quite a number of patients got better with the passage of time—often rather a long time; for instance, in cases of alcoholism a certain number of patients with toxic psychoses improved as the toxins were eliminated and abstinence was enforced; people with reactive depression often reached an inner solution of their subconscious grief and remorse; the manias or depressions of the affective psychoses cleared up as their appointed phases came to an end; and schizophrenics had their usual percentage of remissions. But in the main there existed an atmosphere of therapeutic nihilism, and the attitude of the medical officer in the mental hospital was one of watchful expectancy, with encouragement and persuasion when the early signs of remission appeared.

One must in all fairness balance the picture by putting on the credit side of the ledger certain physical treatments which could be and were being, carried out—namely, the malaria and "Inductotherm" treatments of general paralysis of the insane and the use of prolonged narcosis, usually with "Somnifaine" and a "Medinal"-"Luminal" combination supported by the administration of glucose and insulin. It is to be noted, with reference to prolonged sedation, how sulphonal and "Trional" régimes were still being commonly used, despite their physical complications and the superadded confusion which they produced. Occupational therapy was coming into its own, but many mental hospitals did not utilize this form of treatment at all; similarly, recreational therapy was being applied only in some institutions. The extramural interests of the average mental hospital medical staff were nil, though in a few countries out-patient clinics had been established at local hospitals. The majority of psychiatric clinics, however, were departments of general teaching hospitals

¹Read at a meeting of the Section of Neurology and Psychiatry of the Victorian Branch of the British Medical Association on August 28, 1947.

and were unassociated with country mental services, At this time the treatment of the psychoneuroses was influenced mainly by the psychoanalytical and associated schools, the main centre of which was at the Tavistock Clinic in London. In actual practice, the problem of neurosis was relatively untouched and no concerted and general effort was being made to tackle it.

The influence of that part of American psychiatric practice relative to the social component of the psychological principle of Adolf Meyer was just being felt, and the glimmerings of a new outlook in relation to social psychiatry were appearing. A few child guidance clinics were beginning to be established, and these were experimentally feeling their way towards some settled future. The general need for psychiatric social workers was being realized, though little as yet was being done to provide them, and the after-care and follow-up of patients in the community were negligible. Psychologists, outside of an occasional research centre, were not being used in general psychiatry though they were being utilized for intelligence quotient estimations in the mental deficiency services. All in all, whilst the need for social psychiatry was apparent, ideals were far ahead of practice.

Into this milieu was dropped, in 1937, the bomb of "Cardiazol" shock therapy, and this was quickly followed by the Board of Control's report on Sakel's utilization of insulin coma in the treatment of schizophrenia; then, just before the war, electroconvulsive therapy began to replace "Cardiazol", and the reports of the effects of psychosurgery were just beginning to come forward.

In the intervening period much has happened to change the countenance of British psychiatry. Lessons have been learnt from military practice, which are now being applied, and which are actually being encouraged by the realization by the general medical profession of the part which mental factors play in both acute and chronic disease, especially the latter. This realization has "high-lighted" the valuable part which psychology plays in clinical work, and has also drawn attention to group factors in morale, and to the management of personal interrelationships within groups.

The general drive of the people towards social security has been accelerated by the war. The desire to build a "brave new world", and the revolution in thought which this has entailed, have acted as stimuli to extra-institutional psychiatry. This awakening consciousness of social needs has resulted in an increased tempo at which the wherewithal to satisfy these needs is being provided; and arising out of this have come an increased utilization of psychiatric social workers and an expansion of those voluntary agencies which engage in mental hygiene and which are now to come into line with the organization of the national health scheme.

In the realm of physical therapy, the greatest single advance has been the application of prefrontal leucotomy to the treatment of the psychoses and obsessional states; also important is the use of curare with electroconvulsive therapy, and of penicillin in neurosyphilis; whilst, in the realm of psychotherapy, group therapy has come into its own, and even "ivory-tower" psychotherapists have realized the value of "short cuts". Meanwhile, child guidance clinics have become established and have proved their worth to the community, though their exact function and the extent of their value have not yet been determined. At the other end of the age scale, an increased interest in geriatrics is being shown, as a result of the general ageing of the population and the associated psychiatric morbidity.

It is now proposed to take up the various points *seriatim* and then summarize them into a final impression.

Prefrontal Leucotomy.

As may be seen from the "White Paper",⁽¹⁾ prefrontal leucotomy is being widely used. One noted British psychiatrist, a careful and cautious thinker and just as careful an executant, gave it as his opinion that this operation was the first thing he had come across that was destined to halt the constantly increasing demand for beds for the chronically mentally ill. I was fortunate in that, besides

visiting many centres, I was able to be present at two meetings devoted to this particular subject. At the Royal Society of Medicine I was privileged to hear Dr. W. Freeman give a fine address⁽²⁾ on the application of prefrontal leucotomy to the treatment of intractable pain; he had applied it in cases of recurrent carcinoma, *tabes dorsalis*, the thalamic syndrome, the *cauda equina* lesion and painful hysterical contractures, the criterion of selection of patients being that those regarded as suitable were those who

... suffered greatly from anxiety, nervous tension, depression of the spirit and fear of the future. To them, the sensation was more than the pain, it was coloured by their gloomy outlook and the supposed consequences of pain ... sometimes the pain became symbolic of the torment and suffering that the individual recognized as the consequence of previous acts which still aroused feelings of guilt.

It was used only for patients who could be regarded as psychotic, and in whom the affective condition was at least equally as important as the local condition. It generally seemed to be the logical step forward from antero-lateral chordotomy and the recently advocated excision of the post-central gyrus in these cases, in which the important component of the condition was beyond simple sensory appreciation. In every mental hospital I visited leucotomies were being performed and I notice that in the "White Paper", which goes only to the end of 1944, 33% of mental hospitals and 50% of registered houses had already submitted reports, totalling 1000 cases, to the Board of Control.

Since time does not permit a full account of all the various opinions which were expressed about the mode of action and technique of the operation, the criteria for selection of patients and the factors which determined prognosis, I have built up a composite picture which I consider to be a fair representation of the general view.

With regard to the mechanism of action of prefrontal leucotomy, the subject is by no means elucidated. The rather naïve idea that leucotomy removes the latest acquired inhibitory level is not supported to any extent. Golla⁽³⁾ emphasizes that the emotions may be entirely unaffected, and analysis shows that the main effect is on the power of ethical evaluation, which, in turn, depends on the unique power of the human being to objectify himself. As he puts it:

Man alone of living creatures can feel responsible for his actions for man alone possesses the power of self-objectification. This last-developed mental function depends on the integrity of the last-developed structure of the cerebrum, the prefrontal lobe in relation to the thalamic system of emotional resonance.

Golla considers it fortunate that the central nervous system of man has an "almost infinitely labile structure"

which acts as a flexible organic whole which, if it cannot arrive by its goal direct, will do so by another and less direct path. Anyone who watches the process of reintegration in a relatively undamaged psychotic personality after leucotomy can trace, month by month, a return of power of self-objectification, the sense of personal responsibility, so completely lost immediately after the operation.

Meyer⁽⁴⁾⁽⁵⁾ has shown how variable are the effects of leucotomy and how different tracts are severed in individual cases so that no single tract can be implicated.

I saw no patients being treated by excision of the orbital areas; I met nobody who was using the open approach operation.

The mortality rate was roughly 3%; this figure was mainly due to hemorrhage from aberrant veins which could not be felt by the leucotome. However, this cannot be the whole story, as I met one experienced surgeon who had just completed 126 cases without a fatality. Some endeavour has been made to correlate the value of different incisions with different types of mental disorder, but nothing sound has yet emerged; however, it is considered by some that a more anterior incision is preferable in cases of low psychic tension. This fits in with the known fact that posterior lesions give rise to apathy.

Practically all patients being treated by this method had chronic disorders of about five years' duration; but there was an increasing tendency to select, at an earlier stage, patients who had failed to respond to electroconvulsive therapy and to full coma insulin therapy. Subjects with obsessional states were not "incubated", but were operated on as soon as possible, provided that considerable underlying tension and rumination were present, and that the personality was well preserved.

No patients were made worse, and improvement was still taking place after three years or more.

Generally, if patients were well after eighteen months, the prognosis was excellent. Favourable signs in prognosis were considered at one time to be neurological sequelae, organic confusional states, perseveration, incontinence of urine and faeces; but careful follow-up shows that this impression is not correct—in other words, it is not the amount or type of damage which determines prognosis. Epilepsy occurred in some cases as a complication; but seizures were controlled with sodium phenyl hydantoinate and phenobarbitone, and in no hospital did I come across a case in which epilepsy had persisted nine months after operation; the average time of onset of the epilepsy was about six months after the leucotomy. There were many other complications which I have not time to list now; but the important thing is that except for some patients who presented minor degrees of tactlessness and euphoria, no serious complications persisted. Generally, most patients were up and about in a week. Nearly all patients were being operated on in mental hospitals, but some were treated privately or in general hospitals. The importance of the team in reintegrating and rehabilitating the leucotomy patient after operation cannot be over-emphasized; "total-push therapy" must be undertaken as soon as the immediate post-operative surgical condition is relieved; consequently, it is better to keep the patient in hospital till a considerable degree of reintegration has occurred. Each patient must be considered individually, some requiring more attention than others.

Intelligence is not affected, as has been shown consistently by psychological testing.

The commonest procedure was to operate on patients for whom all other methods of therapy had failed, except, as already stated, those with chronic obsessional states. Those patients who showed a periodicity of symptoms were considered to have a better prognosis. Age was no bar, and duration of symptoms was also no bar, provided no organic change had occurred and some residual affect was apparent. The best single favourable prognostic factor was underlying tension and anxiety. Best results in schizophrenia were obtained among patients operated on before the end of two years, there being a rapid falling-off in the two to five years' group; in manic-depressive psychoses, however, the fall-off was much less pronounced, so that one could wait longer before operation in this latter group without much effect on prognosis. I saw no patient with chronic mania who had recovered, but some patients had been made more manageable.

The most usual procedure was for every patient to undergo examination of the fundi for signs of arteriosclerosis, investigation of kidney function and projection and deterioration tests to determine the presence of affect or of mental deterioration; finally, the case was considered at a staff conference.

Four main groups of patients derived benefit from leucotomy, in the following order of success:

Group I: Patients with obsessive-compulsive states associated with extreme underlying anxiety, tension and rumination. In these cases the results were almost uniformly successful.

Group II: Patients with depressive states associated with severe apprehension and agitation, including involuntal melancholia, when electroconvulsive therapy had failed or when it was contraindicated. A good percentage of social recoveries was obtained in this group, but most remarkable was the almost universal symptomatic relief.

Group III: Patients with florid paranoid and catatonic schizophrenic states, including paraphrenia, associated

with distressing hallucinations and increased affect. The results in this group were not so good as in the first two groups; but some patients whose disorder was of as long standing as ten years made good social recoveries.

Group IV: Patients with chronic conduct disorders associated with increased mental tension. The majority in this group consisted of hallucinated paranoid and catatonic schizophrenics; but aggressive psychopaths, difficult epileptics, aggressive mental defectives and post-encephalitic subjects without organic change were also subjected to operation. In this group social recoveries were only occasional; but the odd good result made the operation well worth performing. What was still more important was that disturbed patients became manageable, and the output and quality of their work improved.

Despite the poor material which had been treated, and the late stage at which the operation had been undertaken, it is fairly universally agreed that roughly 30% to 40% of patients have made good social recoveries, and a further 30% to 40% are subjectively or objectively improved.

An analysis of symptomatic improvement shows roughly a 70% reduction in suicidal tendencies, depression and agitation, with a 30% to 40% reduction in delusions, hallucinations and excitement.

Before I leave this subject, I must state that nobody undertakes the operation of prefrontal leucotomy lightly, and that, except in the few cases in which special indications may be considered to exist, all other forms of treatment are exhausted and then, when the prognosis is considered hopeless and lifelong insanity is the only prospect—then, and only then, is the surgeon called in. Furthermore, before this step is taken, several psychiatric opinions have been obtained, since the case is always considered at a staff conference.

Electroconvulsive Therapy.

The main advance in electroconvulsive therapy has been the use of *d*-tubocurarine chloride with it to diminish the severity of the convulsions and so reduce orthopaedic complications. In general, it is only used for patients who have cardio-vascular disease, gross debility, bone disease and other physical handicaps. However, at the Woodside Clinic⁽⁶⁾ it was being used as a routine measure in all cases; but other workers considered that a complicated and rather unnecessary régime was being built up. To overcome the feeling of suffocation produced by the *d*-tubocurarine chloride, thiopentone in adequate dosage (average 0.3 gramme) was given; this had no effect on the threshold of convulsion and resulted in a sound sleep after the seizure. At the same time as the *d*-tubocurarine chloride was given, atropine (1/100 to 1/50 grain) was also administered to reduce secretions and so diminish the possibility of pulmonary complications. The electroconvulsive therapy was administered three to five minutes after the *d*-tubocurarine chloride, when the patient showed inability to raise the head. No mechanical control of the body was needed. In most cases insufflation of oxygen was required between the administration of the *d*-tubocurarine chloride and the application of the shock treatment, and it was used afterwards also if much cyanosis was present. The occurrence of a seizure had often to be determined by the convulsive movements of the face, which alone reacted. In cases of post-convulsive excitement, a second injection of thiopentone controlled the situation perfectly well. The results with this procedure are much the same as with other methods; but the main advantages claimed are that it reduces traumatic complications, produces no strain on the circulatory system, minimizes post-convulsive excitement and can be carried out without special assistants.

At Woodside, as elsewhere, electroconvulsive therapy is commonly carried out as an out-patient procedure, as specific treatment of an initial depressive condition or as maintenance therapy for patients with chronic states who are thereby kept out of mental hospitals. Patients were treated in the morning, having been given a sedative the night before, and they had no breakfast on the day of the treatment. They were sent home after two hours' sleep. They were accompanied by an escort in case of confusion,

and it is interesting to note that at Bromsgrove (Worcester) Mental Hospital patients attended the out-patient clinics at the mental hospital itself, and no objections were raised. Frequency of treatments varied from one a day in recent cases to once every six weeks as maintenance therapy in chronic cases.

At Saint George's Hospital, London, oxygen and carbon dioxide were administered, throughout the clonic phase and until the patient had taken a few normal respirations, by means of a Hewett gas and oxygen mask fixed firmly in position over the mouth and nose. This method, it was held, was of special value for senile patients and for patients with cardio-vascular disease, as there was less strain on the heart. It was also held that the universal application of this therapy reduced headache, nausea and excitement, which often occur as sequelæ of the convulsions, without affecting the results.

There is no dissentient from the opinion that electroconvulsive therapy is the treatment of choice of manic-depressive psychosis with the mania much more resistant than the depression. A few therapists were using the "confusion-treatment"⁽⁷⁾ for acute mania; in this three to six convulsive seizures are induced on the first day, and their frequency is gradually tapered off after a period of a few days, until a stage is reached at which regular treatments need to be given only once or twice a week, or at even longer intervals, and, finally, a stage is reached at which treatment may be discontinued. The value of this form of therapy is by no means yet determined, for whilst results are good in some cases, it is not known whether it will reduce or increase the susceptibility to future attacks, nor how it will affect the severity of these subsequent episodes. Some patients mildly affected, incidentally, seemed to benefit and be kept on an "even keel" by one application of electroconvulsive therapy per day. I came across nobody using the "confusion-treatment" for chronic psychoneurosis, as Sands⁽⁸⁾ reported, nor did I meet anybody using electro-narcosis.

Caplan⁽⁹⁾ has reported the use of electroconvulsive therapy for breaking up epileptic "twilight-states", and has used it on institutional psychotic epileptics with symptomatic improvement and reduction of seizures in a considerable percentage of cases. Although I inquired, I found nobody as yet applying this result to ordinary out-patient epileptics, possibly because a building-up phase is less marked among them than among institutional epileptics; but it would seem that there is an indication for regular electroconvulsive therapy in episodic epilepsy, in which careful clinical observation has shown a prodromal building-up phase. The electroencephalograph would be of help here, as it is in estimating the value of drug therapy in epilepsy.

Electroconvulsive therapy is still being used extensively in early schizophrenia with good results; but its value is negligible in schizophrenia which has been going on for longer than one year. The interesting observation was made that early schizophrenia which does not respond to insulin may respond to electroconvulsive therapy and *vice versa*; in other words, the results are complementary, and the patients responding to electroconvulsive therapy form a distinct group. If this finding was confirmed, it would be of fundamental importance in supporting the concept of schizophrenia as a symptom-complex with more than one ætiological factor, and perhaps even with different underlying pathologies.

Insulin Therapy.

Insulin therapy is still being extensively used, and its value is not contested to any degree. In fact, at the quarterly meeting of the Royal Medico-Psychological Association in November, 1946, when an excellent discussion on this subject was held, the president, D. K. Henderson, who has not been using full coma doses of insulin in the Edinburgh mental hospitals, said that it was his intention, in the light of the evidence which had been presented, to reinstate an insulin unit in his service.⁽¹⁰⁾

Insulin therapy is still the treatment of choice in schizophrenia, the best results being obtained in the

earlier cases. Remissions are more frequent than in untreated schizophrenia, and the opinion is generally held that the quality of the remission is much better. Long-term follow-up studies are being made, and one should soon know what the long-term effect upon the mental hospital population will be.

This treatment is undertaken before "prefrontal leucotomy" is considered for schizophrenia, and some patients who have not responded to either electroconvulsive therapy or insulin shock therapy respond to a combination of the two, the convulsions being induced either in late sopor or in early coma.

The administration of sub-coma doses of insulin in early schizophrenia is contraindicated, as it is believed that inadequate therapy affects prognosis. An adequate number of comas, at least 25 with a further 10 to 15 for stabilization, is generally considered to be necessary; many of the poorer results are thought to be due to insufficient persistence with the treatment.

I would say that my general impression is that insulin therapy is of undoubted value in producing good quality remissions; but its ultimate worth will be determined only when final standards of treatment are laid down and a long-term follow-up is undertaken with a series of fully treated patients.

Cases with the worst prognosis are those in which there is pronounced "thought-disorder" with little confusion, and minimal emotional response.

Sub-coma insulin therapy is being used extensively. There are no clear-cut clinical indications for its use, but it is indicated when much physical debility is present; there is no doubt about the symptomatic improvement in the physical state, and this method, coupled with rest, freedom from worry, and some psychotherapy, brings "Weir-Mitchell" up to date. Hence this form of treatment is of value in what was formerly termed the "neurasthenic state" and for all debilitated psychiatric patients, except the depressives, for whom electroconvulsive therapy is the treatment of choice.

Neurosyphilis.

The common mode of treatment of neurosyphilis was to utilize penicillin and to follow this up with the usual courses of treatment, since although great improvement was recorded, it was thought that the beneficial effects of chemotherapy and pyretotherapy should not be withheld. The usual course of penicillin was one of 2,400,000 units, administered every three hours in doses of 10,000 units for the first two days, 20,000 units for the next two days, and then 40,000 units till the course was completed. A second course of 2,400,000 units was often given after the lapse of one month, if the response was partial. To prevent Herxheimer reactions, 0.2 gramme of "Bismostab" was given for the two weeks preceding the penicillin treatment, as well as a mixture containing *Liquor Hydrargyri Perchloridi* (30 minims) and *Potassii Iodidum* (10 grains) three times a day.

With penicillin, improvement in the cerebro-spinal fluid findings, so far as cells and protein were concerned, usually started in a few days and continued up to four months after therapy was instituted. Meningo-vascular syphilis responded much better than the parenchymatous form, and hence results in general paralysis of the insane were on the whole disappointing. Fever therapy was still the treatment of choice for the latter condition, followed by a course of treatment with organic arsenicals. It was generally considered that the results of treatment with malaria or the "Inductotherm" were similar, but the latter could be better controlled.

Ether Abreaction.

The depersonalization syndrome is one which, occurring outside of one of the recognized mental disorders, is a relatively intractable state. Electroconvulsive therapy is of value in all those conditions in which depression is a prominent feature. I was interested to see Shorvon⁽¹¹⁾ employing ether abreactions in cases of chronic depersonalization; some of the patients had been in institutions for as long as ten years. If earlier traumatic incidents had been determined, these were used to

stimulate the emotional reaction of the subject as he was going under the anaesthetic and was reaching the excitable stage; if not, the patient was stimulated by an artificial excitement emanating from the operator himself. The patient attained a peak of emotional response before being "knocked out" by the anaesthetic. Of a series of fourteen patients, four recovered and seven were improved. I saw one of those who recovered, who had been in the mental hospital for ten years, and it certainly seemed that, in view of the unusually good response, this treatment should be tried in all such cases.

It is interesting to note that three patients in whom obsessional features were prominent responded remarkably well to prefrontal leucotomy.

Incidentally, ether and other forms of drug abreaction are still being applied to ex-servicemen with anxiety tension, especially those with persistent nightmares, tremors, sweating and other forms of autonomic overactivity. Favourable responses are still being obtained many years after service experience, and it certainly seems that no patient of this type should be left without an attempt to unearth repressed traumatic material with release of the emotional concomitants.

Prolonged Narcosis.

Prolonged narcosis is still being used, but not so extensively as before. The main régimes used are those employing "Somnifaine", a "Medinal", "Luminal" combination, or "Amytal". The main indications for its use that I observed were as follows: (i) early stages of acute mania, not controlled by ordinary sedatives and resistant to electroconvulsive therapy; (ii) melancholia, which is not being relieved by electroconvulsive therapy; (iii) acute anxiety reactions associated with pronounced autonomic disturbances; (iv) acute toxic confusional syndromes; (v) catatonic excitement (as a temporary measure); (vi) severe episodes in organic cerebral disease.

Group Psychology.

One of the important lessons which psychiatry has learned from the army has been the effect of the group on individual morale. Although group psychotherapy is no new procedure, its use has become more general owing to the large numbers of soldiers suffering from nervous disorder and the consequent inability to handle them individually. Besides the utilization in the psychiatric units of group activities such as lectures, social clubs and other recreational activities, direct psychotherapy is undertaken with groups, preferably of eight to ten people, termed the "dynamic-analytic groups". In these, the psychiatrist takes a passive part, acting more as a catalyst. A collective free association occurs within the group, with abreaction phenomena and the production of insight. Additional individual therapy is given as indicated by the reactions produced during the group session. The members of the group are specially chosen to avoid clashing of personalities. An extension of this mode of therapy may be seen at the Tavistock Clinic, where "Moreno's psychodrama" is being employed. I did not hear of group therapy being consistently applied to children.

The Tavistock Clinic, under the leadership of Dr. Rees (former Director of British Army Psychiatry), has taken up especially this question of personal interrelationships in group activity, with some bias towards analytic interpretations. It is considered that the lessons which were learned in the army about groups should be applied to civil life, and may have extensions into industry and even politics and sociology. Tavistock Clinic has become the Institute of Human Relations, and has already, I understand, been consulted by big industrial concerns, including Lever Brothers; a journal, *Human Relations*, is being published jointly with the Research Centre for Group Dynamics of Massachusetts.

Child Psychiatry.

Child guidance clinics have been established by 90 authorities in 120 to 150 different places; but of these,

less than 50% have a "full team", comprising psychiatrist, social worker and psychologist. At present a dichotomy exists between the education and health authorities, and the former run clinics under the control of a psychologist who refers 10% of the patients on to the psychiatrist. General psychiatric opinion considers that good work can be done only by a fully staffed clinic; but there is a shortage of personnel, so that the present situation seems likely to continue for some time, especially as it is estimated that 300 to 330 clinics will be required eventually. For 300 cases a year, it is considered that the staff needed would be one half-time psychiatrist, one full-time psychologist and two full-time psychiatric social workers.

Play therapy is universally employed, but there is no consistent technique. The attitude of the psychiatrist generally in England is eclectic; but the Melanie Klein group uses prolonged training and interpretive techniques, whilst followers of Anna Freud work through the phenomenon of the "transference". The importance of social adjustments and of alteration of parental attitudes is fully recognized.

Light is being thrown on psychosomatic conditions in children and on the aetiology of psychopathic personalities and schizophrenics; much light, too, is being shed on the genesis of the juvenile delinquent and the habitual criminal.

Whilst the electroencephalograph reveals an undue amount of dysrhythmia in groups of delinquent children when the blanket method is used, the diagnosis of any individual case is not possible by this means, as the variability of normality is so wide. Certain psychopathic children have responded to treatment with sodium phenyl hydantoinate and "Benzedrine", which suggests a basic epileptic dysrhythmic condition; this treatment is worth an empirical trial in all cases of psychopathic behaviour, in which there is a tendency to episodic, explosive, unexplained outbursts.

Most of the training of child guidance personnel is undertaken at Maudsley Hospital and Tavistock Clinic, and the former has recently opened its in-patient department, an occurrence which was delayed by the onset of hostilities in 1939.

I would mention here the recent measures which have been taken to deal with spastic children. A unit established by the London County Council in 1943 has proved that, in selected cases, good results are obtained. The service is now to be expanded to take up to 150 patients a year. Besides the physician and orthopaedist, physiotherapists, occupational therapists and speech therapists are utilized. Another school is being established at Croydon by a voluntary organization.

Legal Aspects.

Psychiatric opinion is hardening against the McNaghten Rules, which were established in 1943 and are based purely on the cognitive aspect of human behaviour. There is much feeling that the "indeterminate sentence" should be employed in the management of psychopathic persons; this is based on a recognition of "irresistible impulse" and "partial responsibility", and much is being written about it, in view of the projected Criminal Justice Bill.

It is generally considered that psychiatrists should not be called as witnesses for the defence or for the prosecution, but that a panel of psychiatrists should act as expert witnesses to advise the Crown.

Prewer⁽¹⁾ has shown by his activities in the navy that firm discipline and group methods in a labour camp could reclaim two-thirds of the worst social types. This certainly indicates that the "indeterminate sentence" should be used in dealing with criminal psychopaths, and during the period of detention psychiatric therapy should be given. The treatment of criminals is still in an unsatisfactory state, but it is hoped that the new Criminal Justice Bill will help to remedy matters. The Institute for the Scientific Treatment of Delinquency has now been working long enough (since 1932) for certain conclusions to be drawn. Edward Glover⁽²⁾ pointed out that the psychopathic delinquent, with skilled handling, responds

even better than neurotic subjects. His words were as follows:

Even without formal psychotherapy the effect of mobilizing the interest of a number of "supporting" figures (psychologist, psychiatrist, social worker, probation officer, teacher, employer, foster-parent, etc.) is quite remarkable.

Moreover, so long as no gross defect is present, the duration of the condition is no bar.

Even the old lag is more amenable to psychological handling than the schizoid character.

Despite the war, psychotherapy was being undertaken in His Majesty's prisons, but the personnel available has always been inadequate, though this has meant that cases were most carefully selected with regard to prognosis, and by this means much wasted effort was eliminated. A female psychiatrist and psychiatric social worker are now appointed to the Holloway Prison for Women in London; this has been a long-standing need. Now that specialist personnel for female criminals has been created, valuable data with regard to their management should soon be forthcoming.

The *Divorce Act* is apparently working smoothly in so far as the grounds of insanity are concerned. In practice, the court looks for every possible point in favour of the insane spouse, and the matter is never treated lightly. What effect prefrontal leucotomy will have upon the general outlook with regard to the insanity clauses has not yet been determined.

Psychology and Psychiatry.

The value of the liaison established between psychology and psychiatry, those two kindred subjects, is one of paramount and permanent importance. An expert committee has reported on the work of the psychologists and psychiatrists in the services, and its findings are given in a "White Paper" published by His Majesty's Stationery Office (1947). Mental tests are being used more and more in psychiatric practice, and are even extending into the neurological orbit, where there is naturally a prominence of tests for organic deterioration and conceptual thinking.

Whereas formerly the Stanford revision of the Binet-Simon test for intelligence was practically the only one used in general psychiatric practice, Wechsler's Bellevue scale is now commonly applied. It is given as a battery, consisting of five verbal and five performance tests, and intelligence quotients can be determined in each sphere; it is superior to the Binet-Simon test in the comparison of individuals of different ages, since when it was standardized allowances were made for varying age groups.

Probably next in value are the tests for deterioration, of which the Babcock and Shipley-Hartford test are those most commonly employed. The serial subtraction of seven from 100 is still a valuable test. It is interesting to note that both psychological and psychiatric sections have been formed at the National Hospital for Nervous Diseases, Queen's Square; this shows that both of these specialties come into the diagnosis and management of neurological conditions.

Projection tests, of which the Rorschach test is the most valuable, are being commonly applied. Whilst they may add nothing to what is observed by clinical interview, they nevertheless often confirm suspected abnormality, and are certainly of value in the diagnosis of some cases of early schizophrenia and of many cases of early organic deterioration. They are being used in determining indications for prefrontal leucotomy by demonstrating the presence of emotion and eliminating organic cerebral change, and they are similarly valuable in estimating prognosis of many psychiatric disorders.

Tests of conceptual thinking, which depend on abstraction and synthesis, are as yet not commonly used. They are being utilized mainly in research, especially in determining the functions of the frontal lobe, which, of course, loom large because of the introduction of the operation of prefrontal leucotomy.

Personnel selection in the army would appear to have application in civil life only in the selection of executives. To apply this to all and sundry would need an enormous trained staff which could not possibly be provided, and

even if it were, a planned wage structure and filing system for the whole of industry would need to be evolved, and the principle of direction and interference with the freedom of the individual would result. Personnel selection is a negative process, by which misfits are eliminated. The safest and most economical way to tackle the problem of employment is to utilize positive vocational guidance methods for misfits.

Social Psychiatry.

The experiences of army psychiatry have brought out many points which are being carried over into civilian life. Group techniques, the relationship between psychiatry and the law, and the application of psychological testing have already been mentioned; but the main lesson learnt is that in the midst of any nation is a large percentage of individuals who may be subnormal intellectually, physically or morally, some of whom are mental defectives, but many of whom are not. This large percentage includes "asthenics" who have little incentive in life, and who, if they do not find an interest, sink into a state of invalidism; it includes also individuals of poor moral fibre, often afflicted with headaches, dizziness and blackouts, who frequently become criminals. Some of those who break down in the services make satisfactory, social adjustments in civil life, and become reasonably good citizens; but the others form the "submerged tenth" of the population and constitute a vast social problem. They form a group of chronic psychoneurotics and psychopaths who defeat the general practitioner and constitute an enormous wastage of manpower. There is a great social need for the development of a sense of responsibility in these people—an inculcation of a sense of loyalty to the community; opportunities must be given them for self-expression and self-fulfilment. This, of course, may be expressed in the overworked term "rehabilitation".

Civil resettlement units proved their worth in rehabilitating returned prisoners of war, and were evidently so successful that they have been extended to deal with all demobilized personnel.

Roffey Park Rehabilitation Centre, which deals with psychiatric patients, has been established at Horsham, Surrey, and has more than justified itself, drawing patients from industry and voluntary hospitals as well as from other sources; regular psychotherapy with regular communal activities is employed. It was established in 1944 by the National Council for the Rehabilitation of Industrial Workers, and it is actively concerned in investigating the problem of sub-health in industry; a comprehensive research programme has recently been promulgated.

As is well known, a national health service is being introduced into England next year, and plans are already well advanced. The Ministry of Health fully recognizes the need for proper rehabilitation of the individual in its *National Health Act*, and the Ministry of Labour and Pensions has introduced a *Disabled Persons' Employment Act*; these acts are complementary to each other.

It is accepted by the Ministry of Health that, besides the medical aspect of illness, there are also social, economic and psychological aspects. It is well recognized that much psychological disturbance results from insecurity and anxiety, both of which retard recovery from an illness and tend to render that illness chronic; insecurity may need to be overcome by retraining the subject for a new occupation, when the illness renders him unsuitable for the old one. Hospitals are aware of this situation, and already 204 of the chief hospitals in England and Wales have full rehabilitation departments, 129 have partial facilities available, and another 76 will have them provided when accommodation and staff become available. It is not my intention at present to go into all the aspects of rehabilitation; but it must be realized how much chronic psychological illness will be prevented by proper management of physical illness. With regard to the specific treatment of anxiety states, hysteria, post-concussional states *et cetera*, sufferers from all these syndromes will benefit by carefully planned recreational and occupational therapy, for not only will physical benefit result, but an outlet for mental activity will be provided (hypochondriasis

will thus be prevented), and antisocial tendencies, expressing themselves as aggression or withdrawal, will not be encouraged.

Outside of the hospitals, the Ministry of Labour has instituted schemes for the management of disabled personnel on the lines of the recommendation of the Tomlinson Report, and a full plan has been promulgated, including special workshops for dealing with the disabled. A specific corporation has been formed by the Government known as the "Disabled Persons' Employment Corporation, Limited", and its factories are known as "Remploy factories". This corporation is financed by the State; it is non-profit-making and there is no share capital. There is a home-working scheme in addition to the factories.

With regard to the subsequent care of mental patients in the community, a voluntary organization (the Mental After-Care Association) was formed in 1879, and has been of considerable use, both to mental and to general hospitals. It started a boarding-out scheme in 1928, which along with other activities has increased considerably as a result of the *Mental Treatment Act* of 1931. The Ministry of Health is now in process of coordinating all voluntary mental hygiene agencies, and a National Association for Mental Health is being incorporated by the amalgamation of the Central Association for Mental Health, the Child Guidance Council and the National Council for Mental Hygiene, all the activities of which were carried out under the aegis of the temporarily established Provisional National Council for Mental Health during the war, in cooperation with the Board of Control. It would be impossible in this short space to give any proper account of the wonderful work the Provisional Council did in the war period in managing mental defectives, placing schizophrenics who had had remissions, dealing with problem children and following up service neurosis patients. It is stimulating to note that the social work done during this period was continually expanding, and more and more ancillary workers were trained—some, unfortunately, temporary and relatively inexperienced; but the standards which are now rigidly established are as high as anywhere in the world.

It would be unfair to leave this subject without referring to the excellent work done by the voluntary organization known as the Incorporated Soldiers, Sailors and Airmen's Help Society, which has established rest homes, convalescent homes and the Lord Roberts Memorial Workshops, which are really workshops for sheltered industry and vocational training. These workshops are already established in seven main centres in the British Isles. They are allowed to sell their goods (baskets, decorative ware, brushes and furniture), and actually realized £213,000 during 1946.

There is one final social effort to which I wish to draw your attention. In Liverpool and Manchester an experiment was undertaken during the war, by what were called Problem Service Units. They dealt with those derelict families we perceive in the big cities especially, when there is a gradual moral and physical descent, and when the children, who are produced prolifically, grow up in an atmosphere which breeds delinquency, mental disorder and recidivism. Encouraging results were obtained by personal service, and especially by social education in the home. Merely to rehouse such a family is inadequate. The work is now being carried on by a grouping of voluntary organizations which has been renamed Family Service Units. We should, in a year or two, have important psychiatric and social data as a result of this experiment.

Under the *National Health Act*, regions are being established in the British Isles, and it seems that each region will be controlled by a health authority, with at least two committees, a public health committee, with the medical officer of health as the expert adviser, and a mental health committee with an expert psychiatric adviser. The health authority in turn will be under the control of the director of medical services, who will be an executive officer. Plans are already well advanced for providing mental services for the various regions. For instance, Maudsley Hospital has charge of a large area of London south of the Thames,

and Tavistock Clinic of an area north of the river; county mental authorities will be organizing their own particular areas.

It is interesting to observe how the county authorities, in the brief period of ten years, have extended their activities out into the community, and have lost their insular psychiatric outlook. Most now have out-patient departments, some are running child guidance clinics, and social workers are being utilized wherever possible. This, of course, has had a beneficial effect upon the quality of the new entrants to the specialty of psychiatry, and there is certainly much more keenness and interest than existed ten years ago; the number of entrants is being helped by the £1000 *per annum* training registrarships established by the Government for ex-servicemen.

The Goodenough Committee, which was appointed to go into the question of medical training, has made recommendations advocating increased instruction of medical students in psychiatric aspects of medicine; its recommendations with regard to a five-year post-graduate training course for specialist psychiatrists is not being carried out at present, and probably will not be for some time, since there will be an urgent shortage of psychiatrists for the new national health service; however, the principles laid down are sound, and there is no doubt that the authorities intend eventually to raise the status of the specialty.

Conclusions.

I apologize for being so sketchy and scattered in my remarks, but time does not permit amplification. I have not dealt with psycho-somatic illness and with the increased utilization of psychiatric help in dermatology, allergy, ophthalmology, gastro-enterology, vascular disease, orthopaedics, and, of course, the allied subject of neurology. The new orientation of psychiatry is really part of the new orientation of medicine; much research into the aetiology of mental disorder is proceeding, and such places as Maudsley Hospital (University of London) and Burden Neurological Institute (Bristol) are working on organic lines, attempting the integration of psychiatry with the physical concepts of general medicine. Whereas formerly one noted a multiplicity of "schools", the war seems to have unified the general outlook and brought psychiatrists to a common mode of expression and understanding. However, there is still a strong psychoanalytical influence; the British Institute of Psychoanalysis is functioning strongly, and the Tavistock Clinic still requires its personnel to be psychoanalysed, although it is utilizing group methods and other short cuts, and is especially concerned with the social aspects of psychiatry.

The old concept of the psychiatrist as an asylum doctor has disappeared; his frontiers and outlook have broadened; his interests are extending from medicine into the field of education, sociology, criminology, industry and even political science. He does not court this role; but since human activity is dependent on ideas, since ideas are likely to become pathological, and since the same mechanisms exist in the psychopathology of children, adults and groups of people, he is willy-nilly being drawn into the picture. But as yet he is an individual therapist, a director of a diagnostic and therapeutic team, which includes social workers, psychologists and occupational and recreational therapists. His main aim in treatment is to prevent serious mental disorders, and he treats patients at the earliest possible stage in an out-patient department. Facilities for treatment of mental disorders in the general hospital are not yet all that they could be, but the need is fully realized and should soon be met; so far the only adequate psychiatric department at a London teaching hospital is the York Clinic at Guy's Hospital. The mental hospital itself has changed, and the old nihilistic spirit has gone; it is now a place where there is an active drive towards improvement, and with this change has come, *pari passu*, a change in the attitude of the general public.

One will still have cases of organic dementia, and the proportion is likely to increase as the age for survival of the population rises; but all other subjects of serious

mental disorder, except for the apathetic schizophrenic, stand a good chance of social recovery.

Social methods promise to prevent much mental disorder, and it is hoped thereby that the problem of neurosis, which flourishes in a stratum of insecurity, will be alleviated. Our individual methods have barely affected this vast problem; group therapy holds out hope of dealing with greater numbers of cases; but it is only by creating a stable society and eliminating insecurity that the problem of neurosis will ever be solved fully. The adequate follow-up and after-care of treated patients will prevent relapses and so further reduce the amount of psychiatric morbidity in the community.

Finally, I should like to finish on a personal note by thanking Professor Aubrey Lewis, of the University of London and Maudsley Hospital, for his extreme courtesy and help. Formerly of Adelaide, he is now a dominant figure in British psychiatry, and his keen mind and balanced outlook should contribute much to the new national health scheme. Professor D. K. Henderson, of Edinburgh, has the characteristic caution and solidity of the Scot, and is giving British psychiatry the benefits of his character and wealth of experience. Rees, who was formerly Director of Army Psychiatry, is now in charge of the Tavistock Clinic, and he is applying the lessons which were learnt there. There are two other dominating figures—Norwood East, whose knowledge of psychiatry in relation to the law is unparalleled, and Professor F. L. Golla, whose direction of psychiatric research in relation to the organic nervous system is providing such valuable data.

It is hard to realize that, until recently, only one chair in psychiatry—that at Edinburgh—existed in Britain. The chair at the University of London (Professor Lewis) was created only very recently, but now professors have been appointed at the Universities of Leeds and Aberdeen, and I understand that this is the beginning of a general process. Chairs of social medicine, which have been established at Oxford and Edinburgh, are likewise a commencement.

To me, in looking back over my visit to the British Isles, the remarkable thing has been how, despite hardship, toil and tribulation, the nation has advanced so rapidly in its social outlook. The plan is being well prepared, and I feel that, despite all the difficulties which are now besetting the people, they will still advance at a rapid rate to the attainment of a stable and secure society, provided that a relative peace in the international sphere is maintained.

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PSYCHOSOMATIC MEDICINE.¹

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As in so many fields of medical psychology, psychosomatic medicine is a concept which has different connotations that vary according to the interpretation of the individual author. The following definition was supplied verbally by a fellow psychiatrist: "Psychosomatic medicine is a term to cover a group of diseases marked by organic changes in which emotional factors play an important, though not necessarily an exclusive role in aetiology."

Although this represents the most commonly accepted meaning of the phrase, it is much too restricted. It is not possible to limit the concept to those diseases characterized by organic change. Who can say at what period the reversible stage of any individual case of hyperpiesis passes into the irreversible stage?

A concise definition is difficult to find, and many writers take refuge in following the example of Cobb, who states that "a definition of psychosomatic reactions in words is difficult because many quibbles arise as to exact meanings. It is better to show what is meant by examples."⁽¹⁾ Such loose thinking does a disservice to medical psychology, which has dire need of exact definition of the new terms that it so often introduces. Psychosomatic medicine is not a speciality such as internal medicine, paediatrics, dermatology or gynaecology, but represents a method of approach to the problems of aetiology and therapy embracing these and other fields of general medicine. "Its object is to study in their interrelationships the psychological and physiological aspects of all normal and abnormal bodily functions and thus to integrate somatic therapy and psychotherapy."⁽²⁾

Reduced to its simplest terms, psychosomatic medicine represents the utilization in therapy of the results of the study of the interrelationships between emotional life and bodily processes. It is the application of the psychological approach to general medicine, an attempt to bring to the aid of general medicine the psychoanalytical discoveries of Freud, the individual psychology of Adler, the experimental work of Cannon and Pavlov, and the holistic approach of the psychobiological school of Adolf Meyer.

The importance of a reorientation towards those disorders which are included in the category of psychosomatic disorders is emphasized by the fact that, whilst physical health in its narrower aspects has improved appreciably during the first four decades of this century, there has been a definitely downward move in the socio-psychological diseases. This is illustrated diagrammatically in the following schematic representation of these trends in Britain (1900-1939).⁽³⁾

The major difficulty in the acceptance of a psychobiological approach by those trained in the usual medical disciplines lies in the fact that the teaching of the medical schools is dualistic—almost mystic—in its attitude towards the psyche and the soma. One must drop the conjunction, so that body and mind become integrated as the body-mind; and it follows that the physiology of mind—and of emotion—differs from the physiology of other aspects of the body-mind only in its extreme complexity. In view of the fact that from 40% to 70% of the patients of a general practitioner suffer from disorders that have an emotional origin or an emotional complication, the physiology of emotion must be considered as demanding an appreciable share of the teaching of physiology in the medical schools.

It is important to remember that emotion is always an expression of the body-mind complex—it is the consciousness of the bodily changes that prepare for, are necessary for and precede overt action following some stimulus. But in psychosomatic disorders, all the emphasis is laid upon those bodily changes themselves. Those physical

¹ Read at a meeting of the New South Wales Branch of the British Medical Association on September 25, 1947.

phenomena which occur when any one emotion is stimulated—as in fear or anger—remain more or less constant in all individuals. However, when such changes outlast the consciousness of the emotion, they become highly individualized and frequently all emphasis is placed on only one such change: disordered action of the heart, secretory and/or motor disturbance of the stomach and/or intestines, raised blood pressure, frequency of micturition, muscular tensions. In fact, the somatic manifestations may be so extremely limited that it is not infrequent for a patient to complain solely of unilateral facial paralysis (subjective, of course) representing consciousness of a localized muscular tension. At the functional level, where the changes are still reversible, such manifestations may occur in almost any system of the body; and these manifestations may be isolated, or combined with changes in other systems arising from the same cause.

During the present decade, and especially when associated with the emotional problems of war, the emphasis has been placed upon the alimentary system,

parent or sibling. Frequently it is to be considered the direct result of the precipitating cause, the consequence of which it tends to perpetuate. Finally, and by no means infrequently, it appears to be solely the result of suggestion.

The changes mentioned above are all reversible, but one is on less sure ground when one comes to the irreversible organic manifestations. Unfortunately, as has so often happened in medical psychology, where opposition is met there occurs a tendency to over-state the case and to make claims that are not able to be supported when submitted to critical examination. Such appears to be the case in psychosomatic medicine, where elaborate attempts have been made to correlate certain organic disorders with certain characterological differences. There is an obvious striving in the literature to prove a theory, rather than to seek the accumulation of data of a clinical and experimental nature which is so necessary before valid conclusions can be obtained. One is finally compelled to agree with those critics who state that where structural changes have occurred—peptic ulcer, colitis, arteriosclerosis, asthma, diabetes—and in the so-called accident-prone, we

Indexes of Communal Physical Health

General Death Rate	
Infant Mortality Rate	
Proportion of Stunted Children	
Tuberculosis Rate	
Enteric Fever Rate	
Rheumatic Fever Rate	
Rickets Incidence	

Indexes of Communal Psychological or Social Health

Sterility Rate	
Suicide Rate	
Non-Arthritic "Rheumatism" Rate	
Gastritis and Peptic Ulcer Rate	
Exophthalmic Goitre Rate	
Diabetes Rate	
Cardio-vascular Hypertensive Disorders Rates ..	

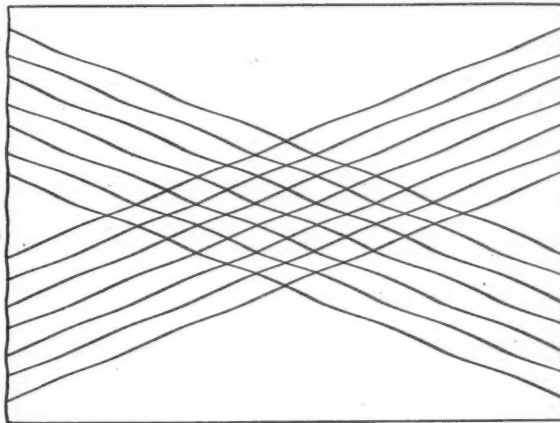


FIGURE I. (After J. L. Halliday.)

with anorexia, nausea, boulimia, vomiting, epigastric or iliac pains, diarrhoea and aerophagy as frequent symptoms of the secretory or motor dysfunctions. In the cardio-vascular system one finds neuro-circulatory asthenias, hypertensions, hypotensions, precordial pain, pseudo-angina, palpitation, paroxysmal tachycardia. The urogenital system yields a fine crop—dysmenorrhoea, menorrhagia, impotence, frigidity, dyspareunia, ejaculatory procos, enuresis, frequently of micturition, precipitate micturition. The list may be further added to from other systems—urticaria, alopecia and other cutaneous manifestations, asthma, dyspnoea both at rest and on exertion, cough, excessive perspiration, hyperthyroidism, hypoglycaemia, hyperglycaemia.

The important problem now confronts us as to why the condition becomes localized in any one organ in an individual case—why does one patient develop overt anxiety, with vague or specific fears, another dysmenorrhoea, and a third exhibit mainly excessive perspiration. The adherents of each school maintain that theirs is the one true religion, but in such a controversial issue it is necessary to maintain an eclectic outlook and to seek from all sources the most probable explanation in each individual case. That much-worn cloak of ignorance, constitutional weakness, still provides a facile refuge for those who need a physical basis to explain all phenomena. It is a sterile concept even when true, incapable of proof, at present, in most cases, and completely void of any therapeutic potentialities. At times the symptom is determined by traumatic experience in childhood and is to be interpreted as symbolic. More frequently, I would suggest, it arises from identification, especially with a loved or hated

are at present merely endeavouring to ascertain whether psychotherapy can retard the progress of the disease or assist in the recovery. It is not possible in a short paper to explore the ramifications of this aspect of the subject. The evidence at present is suggestive but by no means conclusive.

Psychosomatic medicine has been described as merely the irruption of psychiatry into general medicine. This is rather a limited approach, but it certainly does seem to mean to the psychiatrist that general medicine is now adopting the principles of causation that psychiatry has maintained for three decades. This extension of medical psychology imposes added demands on both the physician and the psychiatrist. No longer should it be possible for the former to continue an exhaustive search for "organic" causes before with scorn relegating the patient to the "neurotic" category, fit only for the psychiatrist. Much harm can be done to the patient by an exhausting series of physical investigations which merely serve to fix his tensions upon the organ being investigated. The presence of psychological causes cannot be diagnosed merely by the exclusion of the organic, and both aspects of the body-mind should be explored at the same time, especially as so frequently they are both involved in the causation of symptoms. The presence of a duodenal ulcer does not by any means exclude anxiety as the cause of many sensations referred by the patient to the epigastrium, and emotional causes may be responsible for dyspnoea on exertion and precordial pain in a patient with aortic regurgitation. Many pelvic organs with varying degrees of pathological state are removed without alleviation of the patient's iliac pains or menstrual backaches.

The added emphasis now given to the emotional life demands more research into the physiology and pharmacology of the autonomic-sympathetic-endocrine complex, as it is by these that the physical phenomena of emotion are mediated. It may sound like heresy for a psychiatrist to suggest anything but a psychotherapeutic approach to such problems, but such an approach is costly and lengthy, and the use of any physical therapy that can shorten the illness is certainly indicated. Opposition to this would probably come from those psychiatrists who oppose electroconvulsive treatment in psychotic conditions, because, although it shortens the illness from years to months, it does not remove the underlying cause.

What of the role of the psychiatrist in these psychosomatic disorders? In many of them he should not be needed. Superficial exploration of recent emotional problems closely related in time to the onset of symptoms, with the clearing-up, if possible, of any environmental causes of anxiety, conflict or unhappiness, and the exhibition of appropriate drug therapy, will often provide sufficient symptomatic relief to enable the patient to return to the *status quo*. Only in the more severe states, when the emotional problems arise from causes in the deeper levels of consciousness, or when there is evidence of some personality disturbance needing more searching psychotherapy, should it be necessary to seek the aid of psychiatry. (This presupposes some knowledge of medical psychology on the part of the physician. Many disorders are partly or wholly iatrogenic—to tell a patient that "the nerves of his heart have crashed"—or that "his stomach nerves are all out of gear"—or even the time-honoured euphemism "highly strung" is hardly calculated to give him any foundation upon which to build an approach to his emotional problems.) Unfortunately the search into even the most superficial emotional problems, and into their solution, is a time-consuming task, making inroads upon a commodity with which the average general practitioner is very sparingly endowed.

From the psychiatrist, psychosomatic disorders demand a genuine psychotherapeutic approach, an approach which frequently yields very satisfactory results whilst the disease remains at the reversible level. Unfortunately the public have been conditioned for so many years to regard medicine as "something out of a bottle", that frequently the most difficult part of psychiatric treatment is the preliminary necessity of persuading even the most intelligent patient that physical symptoms can have anything but an organic basis as a primary cause. One is frequently informed by patients in an out-patients' department that they have been sent to the wrong clinic—"the pain is all in my stomach".

The approach to these disorders by the psychiatrist is, of necessity, as wide as possible and is best expressed by the psychobiological school of Adolf Meyer—it should "aim at as comprehensive a personality study as possible, looking for dynamic factors in each and all phases of life and using any and all sources available".⁽⁴⁾ One may uncover mental traumata in early childhood in one case; at puberty or adolescence in a second; at the time of onset of symptoms in a third. It is frequently a long, tedious task, sifting a life for the seeds of faulty attitudes, of evasions and escapes; frequently fruitless but very satisfactory when successful.

Patients in whom organic irreversible change has occurred provide a different challenge. It has yet to be proved that psychotherapeutic methods can cause any improvement in the pathological changes that have become established, but it should not be forgotten that reversible changes can coexist with and intensify the symptoms of irreversible change. For instance, I have seen in a diabetic of long standing a decrease of 75% in her insulin requirements following recovery from the depressive phase of a cycloid psychosis—one of the few conditions in which it is necessary to call in physical psychiatric treatment—electroconvulsive—to one's aid.

All such patients call for close cooperation between physician and psychiatrist, whose efforts should be coordinated and complementary. But it is necessary for the

former to recognize the limitations of the latter—I confess to a feeling of hopelessness and impotence when faced with the necessity of dealing with such patients in the crowded 'out-patients' department of a general hospital. Here, I feel, the only solution is an adequate and adequately trained staff of efficient psychiatric social workers—a counsel of perfection for the future.

Certain aspects of psychosomatics lead to some apprehension concerning the future. With their love of sesquipedalian polysyllables, the Americans are piling Pelion on Ossa, and have already separated psychogynecics from the mother stem; perhaps we may soon hear of psycho-oto-rhino-laryngics. Actually this speciality within a speciality is really a negation of the whole concept behind the term psychosomatic, and suggests a perpetuation of the old dualism of body and mind that it is so important to destroy. Rather is it necessary to learn the lessons of psychosomatics and forget the name. To quote Flanders Dunbar again: "When medicine has apprehended the psychosomatic problem and assimilated it, the adjective will be obsolete—all medicine will be psychosomatic".⁽⁵⁾

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PSYCHOSOMATIC MEDICINE.¹

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THIS paper intends to deal with some of the principles of psychosomatic medicine as laid down by Flanders Dunbar, together with my own experience in the application of these principles to the care of patients in the psychosomatic ward at the Repatriation General Hospital.

Broadly considered, psychosomatic disorders fall into three main categories. Thus we recognize: firstly, those subjects with various somatic manifestations who have no organic disease to account for their symptoms; secondly, those who have in fact actual organic disease, but who have erected a more or less extensive neurotic superstructure which tends to obscure the diagnosis; and finally, those patients of whose organic disease we believe psychogenic factors are playing an important role in the aetiology and course. I propose to deal briefly with the first and second groups and to study the third group in more detail.

We all see many people who complain of various symptoms, but in whom no organic disease can be detected. These people are sick people, and can we say that we have dealt fairly by them? Have we brought to bear that same skill and knowledge which characterize the medical profession in other types of illness? My impression is that many doctors are intolerant and impatient of any illness which smacks of a psychic background. As a matter of fact, we rarely like the things that we do badly, and this feeling of resentment possibly arises from a sense of futility and helplessness engendered by ignorance. Possibly, too, there is an element of fear that the patient may, after all, have some obscure organic disease (not apparent at the moment) to account for his symptoms; thus one wastes valuable time in waiting for something to turn up, rather than run the risk of making

¹ Read at a meeting of the New South Wales Branch of the British Medical Association on September 25, 1947.

a diagnosis based on a psychogenic origin. This fear to my mind is the result of early teaching, which has tended towards the making of a diagnosis of neurosis by exclusion of organic disease, rather than by the taking of a psychosomatic history and consequent establishment of the fact that certain symptoms are neurotic.

As a result of my service under Sinclair, of Melbourne, I learned to appreciate three things which are important in the recognition of this type of illness. Firstly, these patients should, at some time or other in their life, have actually suffered from an organic condition strongly resembling their present somatic disorder, or secondly, their disability should be in some way associated with their employment or daily routine, or thirdly, they should have been in close contact with someone who did in fact suffer from the condition which their somatic disorder simulates. If none of these qualifications obtain, then a most diligent search should be made for organic disease. These people present a difficult problem in therapy; but it is challenge which should be met. The routine use of sedatives, together with a reassuring pat on the back, scarcely ever results in even a temporary remission of symptoms. When psychotherapy is attempted, it too often consists mainly of inquiries into marital and environmental difficulties, the patient being meanwhile exhorted not to worry and to get plenty of rest. Little or no inquiry is made into personality traits, nor is any attempt made to superimpose the patient's emotional reaction to life situations upon the initiation and development of his symptoms. Nevertheless treatment such as this at least recognizes the fundamental basis of the illness, and does not make the unfortunate error of treating organ dysfunction alone and thereby fixing in the patient's mind a conviction of disease—a state of mind which eventually may lead him to seek surgical intervention. We have a tendency to view with disfavour many of these operations, and yet we discount the fact that only too often they are conceived originally in the consulting room of the physician.

The best results I think are obtained by taking a careful psychosomatic history and following this by a very thorough physical examination. Just as in the courts of law not only must justice be done, but it must appear to be done, so in these cases not only must the examination be complete, but it must appear to be complete. Perhaps certain laboratory and radiological examinations may have to be made, and these are important from a psychotherapeutic point of view if only to demonstrate that the examination has been complete and thorough and calculated to reveal any organic disease which may be present. As soon as the diagnosis is made, no time should be lost in conveying it to the patient in simple language and instituting treatment forthwith.

Adequate psychotherapy remains the most valuable therapeutic weapon. I have used sub-coma insulin therapy very freely, and I am satisfied that it is often of real benefit. It is a form of treatment which should be employed in suitable cases by all physicians and not restricted to psychiatrists alone. "Cardiazol" in sub-convulsive dosage and narco-analysis should not be beyond the scope of physicians interested in those patients with conversion hysteria who so often find their way into general medical wards. However, in other forms of neurosis, I think physicians would do well to avoid any specific analytical technique, because I believe that in inexperienced hands the analytical probe can prove just as harmful and dangerous as the surgical probe. The judicious use of sedatives, especially in the early stages of treatment, is often of very great value; but care should be taken to ensure that the patient understands clearly that their action is upon the nervous system alone. They should be discontinued as soon as possible.

When we leave these people and pass on to those in whom organic disease is present, but in whom there is a psychoneurotic overlay, a nice problem in diagnosis and treatment arises. In some the hysterical overlay is so apparent that little difficulty is met; but in others the psychogenic factors are not so obvious, and may even be

neglected altogether by the physician, although it may well be that failure to recognize and treat the emotional disorder is responsible for the continued incapacity of the patient or for the initiation of relapses. In this regard, I would direct your attention to cases of recurrent cardiac decompensation. I do not wish to labour the point, but I am sure that if we employed a psychosomatic approach more often in dealing with such as these, much unnecessary invalidism could be avoided. We accept these patients with congestive cardiac failure into our wards, and after energetic treatment with digitalis and mercurial diuretics send them home again, without any attempt to estimate the emotional factors which may have been responsible for their breakdown. I am now more than ever convinced that not enough attention is paid to the effects of organic disease on the personality as a whole, even in those cases in which the major disability is due to the reaction of the patient to the illness and not to the organic disorder itself, despite the fact that often this is the only part of the illness which is amenable to treatment. Even in the presence of grave organic disease there is much that can be done. This has been well demonstrated by Miller, working in the wards of the Repatriation General Hospital, with patients suffering from paraplegia. After twelve months' painstaking care and encouragement, he succeeded in converting a number of these patients from mere pieces of human wreckage into independent, well-adjusted persons engaged in full time, gainful employment, even though they were still completely paralysed in both legs.

Now, I think you will agree with me that up to this point I have been on a fairly firm terrain; but it is when we come to discuss the possibility that actual organic disease may be initiated and maintained by emotional disorders that the way becomes increasingly slippery and it is essential to keep one's feet firmly planted on the ground. Nevertheless, evidence is mounting that such is indeed the case. It was Cannon who demonstrated the profound physiological changes which can occur in almost any organ of the body is a direct result of psychic stimuli, and now we are beginning to realize that if these physiological changes are allowed to persist, actual structural alterations may occur. Those of us who have observed the physiological changes which occur following massive doses of insulin, and have then seen with dismay these changes persist until at length the organism suffers irreparable structural damage, can hardly doubt the truth of this contention. In other words, there are people who as a result of psychic stimuli develop physiological somatic disorders which are reversible, but later structural and irreversible changes are liable to take place.

Now, in order to estimate the significance of emotional disorders in organic disease, it is essential that we possess a working knowledge of the basic principles of psychopathology, for without this we cannot elicit a satisfactory psychosomatic history, nor can we make an accurate clinical diagnosis. Whereas in the past we have admired those physicians who have with Osler "heeded the salutary lessons of the dead house", we now realize that a much wider understanding of the processes of disease is necessary for the physician of today. The modern physician understands that from infancy onwards man has to learn to adjust himself, not only to his changing environment, but also to his advancing years and to the problems which arise within him. If in the process of this adjustment certain unpleasant conflicts are engendered, they may be repressed more or less adequately to a subconscious level; but in so doing man must pay the price of increased tension, which in later life may result in profound physiological changes. It is true also that as a result of early training many people remain emotionally immature to a greater or less extent throughout their whole life, and thereby tend to react to difficult life situations in a child-like fashion, which may express itself in various somatic disorders. Moreover, different people manifest different personality traits, and unless the physician has assessed the particular type of

personality with which he is dealing, he cannot make an accurate clinical diagnosis, nor can he institute the appropriate psychotherapy. The modern physician has learned to appreciate the work of Sherrington (who postulated that most relief from instinctual tension is to be gained through action, to a lesser extent through speech, and practically not at all through thought alone), and thereby he understands why certain people react differently in unpleasant situations, and their bodies suffer accordingly. From this he has realized that deep-seated conflicts, which are not exteriorized in action, are much more likely to harm the subject than are transient situational or environmental difficulties of which the patient is well aware, and which he can thus the more easily take appropriate measures to solve.

Now, in order to apply our knowledge of psychopathology, it is essential to take a complete history, which should embrace not only the illness which is being surveyed, but also an investigation into the life story and total personality of the patient as a human being. In this regard, it is interesting to note that at the Royal Prince Alfred Hospital history taking has been transferred from the first to the second of the clinical years. I do not know what the professor of medicine has in mind, but I hope that a psychosomatic approach will be substituted for the present unsatisfactory form. In history taking, the important facts to be elicited are the following: firstly, the origin and development of the symptoms, with special reference to the environmental situation obtaining at these times, together with the patient's emotional response and his ability to adjust himself to such situations; secondly, the present social, economic and family status, with observations on how he enjoys his work and spends his leisure hours and on whether or not his sexual life is normal or whether any marital discord exists; thirdly, the family history—and in this regard it is of very little value merely to record the various illnesses and deaths of parents and siblings; but what is all-important is to note the age of the patient at the time of these crises and what his emotional reaction was, and whether or not the impact of this illness has left any permanent impressions on his mind, and thereby conditioned him to a similar illness in later life. Finally, a record should be made of early childhood and of the interpersonal relationships existing in the family, followed by observations on school days and intellectual attainments, with some note of the patient's capacity for making friends and mixing with his fellow students, and then of his record of civil adaptation with all its worries and frustrations. The patient's personality structure can usually be determined as a result of this investigation, and this is all-important, in so far as we believe that a characteristic behaviour pattern predisposes the patient to a specific form of organic disease.

Among the diseases in which psychogenic factors are thought to play a major role in the etiology, we should consider essential hypertension. I believe that the development of essential hypertension is along the following lines. A number of people inherit a constitution in which the vascular tree is unduly sensitive to emotional stimuli, but not all of these develop permanent hypertension. Only those who reveal in their emotional make-up a queer mixture of aggression and submission become affected. Their life story reveals aggressive traits, especially rage reactions and temper tantrums in childhood, which they have succeeded to some extent in repressing as they grow older. This is usually because they have become fearful of allowing full play to their aggressive traits on account of situational difficulties and have tended rather to become submissive to their lot; but thereby they have developed a mental conflict marked by a not inconsiderable amount of hostility and resentment and by a greater or less degree of emotional tension. This inevitably results in a generalized increase in vascular hypertonus and in a corresponding rise in blood pressure. Now it is possible that localized areas of vasospasm occur to account for headaches and giddy attacks; but more importantly the renal vessels may become

involved, with resulting ischemia, which in turn increases the blood pressure and succeeds in setting up a type of vicious circle. If this state of affairs is allowed to persist unchecked, certain structural alterations take place which may lead eventually to arteriosclerotic changes and permanent elevation of the pressure. In other words, as I have said before, the changes are at first physiological and reversible and later organic and irreversible. Thus it is of the utmost importance that early treatment should be instituted. Treatment should be along psychotherapeutic lines, based on the psycho-pathology of the disease, and designed as far as possible to allow of a solution of the patient's mental conflict by release of pent-up aggression into channels which are harmless to himself and to others. I say advisedly that it is wrong to enjoin these people to take a good long rest, or unduly to restrict their activity with perhaps a little phenobarbitone or bromide to soften the blow. This merely succeeds in forcing them to act differently, and not to feel differently, and I would remind you that the whole purpose of psychotherapy is to persuade people to feel differently. In fact, psychotherapy must continue until this end is attained. It is even now a common practice to put these patients to bed for a long or short period. This may result in a temporary improvement as a result of pandering to their strongly submissive traits; but I have yet to see any lasting benefit from this form of therapy. Unless these people are of poor intellectual standard, they are quick to realize that their pent-up aggression is indeed responsible for their somatic disorder, and it usually does not prove very difficult to find for them suitable channels in which to release their emotion. At first they may be somewhat fearful to take this step, and taken by and large they are all rather fearful people; but with a little encouragement they will usually cooperate. One must be prepared for some behaviour disorders during this process of elimination, but these are rarely of a serious nature.

As I see it, the position then is as follows, when one is confronted with a case of essential hypertension. After taking a psychosomatic history, make a careful physical examination to determine whether or not actual structural damage has occurred. In this regard I can see little point in blood urea estimations or urea concentration tests. Rather look for changes in the retinal vessels and repeatedly examine the urine for red blood cells. Geoffrey Evans, of London, has expressed the view that if the diastolic pressure is persistently above 130 millimetres of mercury, we may safely assume the presence of organic changes. If no organic damage is present, then adequate, correctly designed psychotherapy may result in an appreciable lowering of the pressure. Where structural damage exists, much symptomatic relief can be obtained even though the actual blood pressure readings remain unaffected.

Patients suffering from peptic ulceration provide an interesting psychosomatic study. Consideration of their personality traits reveals that throughout their lives they are dominated by an ever-pressing fear of insecurity in their interpersonal family relationships and in their economic stability. If we remember that there is a great tendency in all of us to regress to infantile behaviour in times of stress, and if we remember too how intimate is the association between nourishment and security in infancy, then we can understand why it is that these people, above all others, tend to develop gastric dysfunction when the life situation seems to threaten their beloved security. It appears too that these people are basically dependent personalities with great tendency to lean upon others for support. The recognition of these personality traits is most important in adequate therapy. I believe that many people who exhibit these traits struggle against them in adult life, and that this leads to a mental conflict which overflows into the autonomic nervous system and via the vagus nerve causes hypermotility and hypersecretion in the stomach; these together with a localized area of ischemia (the result of vasospasm) may initiate an ulcer. The innate desire to be spoon-fed and cared for,

of course, finds expression in the traditional medical care of these patients. They are put to bed and nursed like children with two-hourly feeds and lots of powder and medicine, and in most cases the ulcer heals rapidly. But then, only too often we send them back to precisely the life situation which resulted in their original lesion, with little or no attempt at psychotherapy. No attempt is made to persuade the patient to deal with his problems in an adult fashion, but rather we await the time when once again his stomach will speak for him—the so-called organ language. However, too often the physician prefers not to listen; and in these days may even endeavour to silence the organ forever by slicing the vagus nerve. In just what fashion the patient will then exteriorize his conflict remains an interesting speculation. The accepted indication for this operation at present is when adequate medical treatment has failed. I believe that no medical treatment can be considered adequate unless a thorough survey of all possible psychogenic factors has been undertaken, and psychotherapy has been fully employed.

Lately Wilson and I have adopted a psychosomatic approach to a number of cases of *diabetes mellitus*. There has been a family history of diabetes in some and not in others. Possibly, as in hypertension, there may be some constitutional predisposition to this disease; nevertheless the psychogenic factors in the initiation of the condition and in relation to relapses are apparent to all who care to seek for them, and warrant just as much attention in the course of treatment as is at present paid to intercurrent infections.

Dunbar recognized in these people considerable latent anxiety and emotional tension, associated with lack of self-reliance and fear of accepting responsibility or making decisions in life. She was of the opinion that the long-continued anxiety and tension were more important than any immediate life situation in precipitating the illness. This is probably true; but my own observations lead me to believe that situational disturbances play a major role in the breakdown of hitherto stabilized diabetics, especially when these situations demand some decisive action from the patient. I firmly believe that psychotherapy plays an important part in the stabilization of any diabetic, and that those who put their trust in a balanced diet and insulin alone are treating the disease in a very incomplete fashion. The only diabetic stabilized in the true sense of the word is the individual who has been taught to adjust himself to his environment as well as to his disease. It is important to realize that, although insulin has revolutionized the treatment of diabetes, physicians are becoming increasingly disappointed in the ultimate prognosis, and have now learned to fear the incidence of cardio-vascular degeneration in this disease. One wonders whether the long-continued anxiety and tension, characteristic of these patients, may not be an important factor in the production of this vascular degeneration, and whether failure on the part of the physician to recognize and treat this emotional tension has, to some extent, rendered the disease more deadly than is actually necessary.

As an illustration of organic disease in which psychogenic factors may or may not be of significance, I should like to direct your attention to rheumatic fever.

As a result of intensive study, Dunbar concluded that the majority of rheumatic fever patients disclosed a distinct personality pattern. They were quiet, shy and retiring in childhood, with noticeable swings of mood. They had few friends and were often reared in an unfortunate atmosphere of parental discord, where little attention was paid to their emotional development. They were very prone to indulge in day-dreaming, and tended to escape from reality into a world of fantasy. Dunbar endeavoured to analyse the life situation prior to the onset of their illness, and was impressed by the frequency of emotional upheaval due to separation from their family, or from their environment and from what few friends they possessed. It behoves us then, while we are using sulphonamides and salicylates in the prevention and

treatment of this condition, to bear in mind the characteristic personality traits of these patients, and the possibility that adequate, well-directed psychotherapy may be of real value in hastening their recovery and may even contribute something towards the prevention of relapses. There is little doubt that these patients possess schizoid personalities, and in this connexion it is interesting that I was impressed by the high incidence of rheumatic fever and rheumatic heart disease in the siblings of some 250 cases of schizophrenia whom I had under my care in New Guinea. My experience was that most of these patients developed their schizophrenic episode, or at least a schizophrenic reaction state, within a comparatively short time of leaving Australia, in just the same way as Dunbar observed that rheumatic fever developed following separation from emotional ties.

Now, I sometimes wonder whether or not chorea, with its bizarre emotional disturbances and its aimless, purposeless bodily movements which yet not infrequently occasion actual organic heart disease, may not represent some link between schizophrenia and rheumatic fever. This concept, apart from its originality, may merit little consideration.

There are a number of other diseases in which psychogenic factors are all-important, notably cardiac arrhythmias and actual infarction, a host of endocrine disturbances and allergic diseases, together with disturbances of the gastro-intestinal tract, in each of which recognition of characteristic personality traits is essential for adequate therapy; but I feel that I have already said enough to indicate the lines along which the modern physician is moving towards a better understanding of disease processes in the body. Lest there be any among you who feel that I am overstating the position, I should like to quote from an address delivered by the Chancellor of the University of Sydney some few months ago. Sir Charles Blackburn said this:

In these days of the X ray, the test tube and the electrocardiograph there is a tendency to overlook the human side of medicine. At least half of the ills on which doctors are consulted are due to a disturbance of the bodily function because the orderly and rhythmic management of the body is not being carried out by the mind. In those cases in which noxious agents are responsible for the illness no doctor can afford to overlook the part the mind is playing—sometimes it confuses the diagnosis.

I wonder whether Sir Charles Blackburn would be prepared to vary the old adage and agree with me that "more things are missed by not listening than by not looking".

VITAMIN C IN THE PREVENTION OF COLDS.¹

By NORMAN W. MARKWELL,
Brisbane.

On two occasions I have had the therapeutic aspect of vitamins acutely brought home to me. In the epochal years of 1912 to 1914, I was engaged in clinical research on the beriberi heart. Nearly thirty years later—at the end of 1941—I found myself in medical charge of men whose diet was unavoidably deficient, not in vitamin B, this time, but in vitamins A and C. More than half of us contracted a vesicular rash, occasionally generalized, but as a rule localized to the arm-pits. At that time also, another unavoidable exigency demanded wholesale work with "K wire". Most of the men got scratches, generally on the legs, which invariably became more or less infected. A large proportion of these men had a rise in temperature. In four cases, this rise was to over 105° F., with septicaemia and no local reaction. Two of these four men became stuporose, and had difficulty in taking by mouth

¹ Read at a meeting of the Queensland Section of the Royal Australasian College of Physicians on September 17, 1947, at Brisbane.

"M & B 693" tablets—of which, fortunately, there was a good supply. During resolution of the septicæmia, abscesses developed at the site of the original lesion. At the same time influenza was epidemic, and there were several cases of pneumonia. One of these patients had meningitic symptoms, and the condition of another patient, who was in a deep stupor, clinically resembled cerebro-spinal meningitis. Another case, probably one of infected sinuses with an acute exacerbation, also resembled cerebro-spinal meningitis. No bacteriological investigation was possible. There were no deaths, thanks to the sulphapyridine, which was given in very large doses to those patients who had meningitic symptoms. A little of a multiple vitamin preparation was available for the dangerously ill patients; but this had to be given sparingly at first. As the supply increased, the polyvitamin preparation was given to patients whose temperature was between 102° and 103° F. An increase in the rapidity of resolution seemed certain. Sulphapyridine had been given as a routine measure to any patient with a temperature over 101° F. An experiment was now made in the case of a patient whose temperature was nearly 102° F., and who also had the usual enlarged glands at the insertion of the infected limb; sulphapyridine was withheld and six of the polyvitamin capsules were given within twelve hours. The resolution was at least as fast as in similar cases in which the sulphonamide drug but no vitamins was given, the temperature falling to and remaining normal within about a day or so. The supply of vitamins had become more plentiful, and the treatment for the moderately ill patients was now vitamins only, with continued success. Indeed, the results were dramatic.

About eighteen months later—in 1943—I had charge of about 50 patients suffering from typhus fever of the scrub variety. All the mildly affected patients stated afterwards that they remembered nothing of the two weeks when they were ill. About ten of the patients developed serious complications, mostly pneumonia; one patient had a urinary lesion and protracted tachycardia, and one patient had pneumonia which was followed for three weeks, by signs of encephalitis, manifest mainly in relation to the *substantia nigra* region. Meanwhile had come to hand the wound-healing dictum of protein and a gramme of vitamin C daily for three days, followed by 100 milligrammes a day. I had fallen into the practice of following that method, and moreover of using it also in all cases of infection, from any cause, which seemed likely to be dangerous. As well as ordinary cases of pneumonia, sulphapyridine and later sulphadiazine were given in pneumonia complicating scrub typhus, and in addition, the patients received the above-mentioned dosage of vitamin C. Every patient recovered. This has continued to be my practice until the present day.

During the last three years I have ordered vitamin C in large doses for the aborting of colds. At first the dose given was half a gramme. It then became apparent that a larger dose than half a gramme was indicated; it was also observed that the sooner the large dose of ascorbic acid was given on the onset of a cold, the more likely was the cold to be aborted.

The number of patients who have taken large doses of vitamin C to abort colds during the last three years is considerable—large enough to allow an opinion to be formed, at any rate as a preliminary to more scientific research.

The question of suggestion, of course, arises. Many of us used to think that that was the rationale of ammoniated quinine treatment. But a cold has been aborted by vitamin C in patients who have just developed it, with no other remark from me than "take this". My experience seems to show that, if the dose is given both early enough and in large enough quantity, the chances of stopping a cold are about fifty-fifty, or perhaps better. It is an amazing—and comforting—experience to realize suddenly in the middle of the afternoon that no cold is present, after having in the morning expected several days of throat torture. If suggestion is the reason, then let us be thankful for suggestion. Nevertheless, clinical experience with vitamin C and wound healing seems to show that

a physiological factor is operating. Butler and Thomas recommend "the administration of adrenaline or of ascorbic acid to relieve toxic symptoms from histamine which is being given to patients suffering from migraine".

With regard to the aborting of colds with vitamin C, the facts, as far as I am in a position to discern them, seem to be as follows.

1. Three-quarters of a gramme or more of ascorbic acid is indicated immediately a cold is felt to be present.
2. The sooner the large dose of vitamin C is given on the onset of the cold, the more is it likely to be of value.
3. If the cold has not been aborted in about three or four hours or so, another half-gramme or more of vitamin C is indicated.
4. If the cold is still present on the second day, at least another gramme of vitamin C is indicated, and that dose may be repeated on the third day, the dosage decreasing thereafter.
5. If the large dose of vitamin C is given very soon after onset of the cold, it is aborted in the majority of cases.
6. In colds which continue, provided the first dose of vitamin C has been given early enough, every patient benefits from vitamin C administered in that manner. Patients who have suffered from repeated colds in the past agree on that.
7. I have never seen any ill effects whatsoever from vitamin C and I do not think that there are any. If more vitamin C is taken than is necessary for requirements at the time, it seems to be just excreted and wasted. This product has become much reduced in price lately.
8. Some people seem immune from colds for an indefinitely long period. Other people catch cold in most trivial circumstances. The reason for such an extraordinary difference may be local; it may also be allergic or it may arise from some other constitutional condition which we do not yet understand—there is no doubt that a cold may come on during a psychopathological upset. In some cases, after a cold has been stopped by vitamin C, another cold will commence after an interval of days or a few weeks. The second cold may be stopped likewise, only to be followed by another cold not long afterwards. It seems as if a period of infection at more or less long intervals is necessary to some people to re-create immunity. But even for such patients, a slight cold is better than a crippling cold.
9. If a cold continues, and if vitamin C is adequately taken, patients who used to suffer the torments of a dry, rasping throat growing increasingly worse for three days or so, no longer suffer throat torture, and nasal secretion appears within a day or so, often within a few hours.
10. So far as I am aware, only one firm in Australia markets an ascorbic acid tablet of over 50 milligrammes. Patients are not the only group of people who grow panicky when 15 or 20 tablets are ordered in one dose. That firm puts up a tablet of a quarter of a gramme. Three or four of such tablets may be ordered immediately on a patient's contracting a cold.
11. A tablet of 333 milligrammes, or even of 350 milligrammes, of vitamin C seems indicated as well.

Conclusion.

These opinions are based on experience of cases running into over three figures. But such experience is more or less casual and by no means scientific. Many patients in a consulting physician's practice are not seen again, and in the case of those patients who are, "colds" when not present are apt to be lost sight of in the face of more important conditions. Nevertheless, the results seem to warrant investigation by some research body with the requisite scientific opportunities.

Reference.

- ① S. Butler and W. A. Thomas: "Intravenous Histamine in the Treatment of Migraine. Preliminary Observations". *The Journal of the American Medical Association*, Volume CXXVIII, 1945, page 173.

A MODIFIED DRINKER RESPIRATOR FOR NEWBORN INFANTS: A PRELIMINARY REPORT.

By F. E. HYTEN,
Sydney.

The Drinker type respirator for use in *asphyxia neonatorum* is not new. In the United States, the only country where it is at all widely advocated, it is agreed to be the most efficient and the safest method of maintaining respiration; but in this country its practical use is almost unknown. Its place, however, will not be described here. I propose merely to describe the machine, and the results of its use in practice will be submitted for publication when sufficient data are available.

The principle of the Drinker respirator is simple. The subject is placed in a chamber, the head remaining outside. The chest is dilated by reduction of the pressure within the chamber, and the natural elasticity of the lung is responsible for the expiratory process.

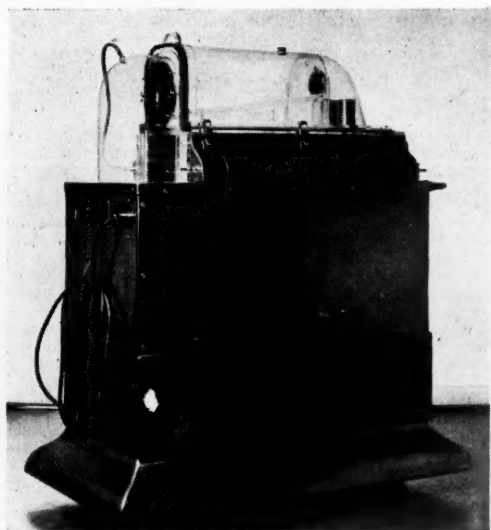


FIGURE I.

In the respirator for adults, additional ventilation is achieved by compression of the chest by positive pressure within the chamber.

The major modifications necessary for the respirator for infants are, firstly, the abolition of all positive pressure, which, apart from being obviously useless when the lung is completely deflated, may be dangerous in forcing blood out of the thorax. Secondly, the maximum negative pressure must be carefully regulated. Pressures below -15 centimetres of water are said to be frequently responsible for pulmonary damage. Thirdly, the rate must be between 35 and 45 per minute—the average infant respiratory rate.

An attempt has been made to construct a model of simple yet rugged design, which can be safely used by the most inexpert, and in which the possibility of mechanical breakdown is reduced to a minimum.

The chamber of the machine is constructed of "Perspex". The end section, together with the floor, is fixed to the frame, while the hood of the chamber is hinged along its rear edge and can be thrown back.

The hood is kept tightly closed by four "snap" catches, two on each side, all lines of junction being sealed by strips of sponge rubber.

The "head" end section is of half-inch "Perspex", and has a circular hole five and a half inches in diameter, around which are set eight studs for attachment of the collar. This last-mentioned component is made in two sections, the body of the collar being of half-inch sponge rubber and carrying half-circle moulded sections which can be inflated. The two sections are maintained in position by two corresponding half-circles of brass one-eighth-inch in thickness. The hood is partitioned in its interior, the partition carrying a thermometer-hygrometer. The top of the hood carries a light "blow-off" valve of the type used on anaesthetic machines.

The base or floor of the chamber supports a "Perspex" tray, sloping at 15° towards the collar, and two shielded 15-watt globes for heating purposes. The inlet from the pump enters the chamber between the heating elements and behind the partition when the hood is closed.

The chamber is attached to the main frame by a stainless steel pressing. This pressing houses, at the head end, a series of steel slides as an adjustable head rest, and on each side of this are fitted two taps, one delivering oxygen, the other for suction. Behind the slides the reduction valve gear for the oxygen is fitted, and behind this again two small pipes from the floor of the chamber run to the

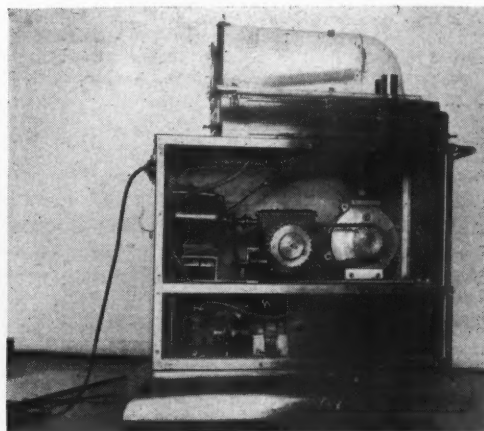


FIGURE II.

rear of the pressing. One is attached to a mercury manometer, the other to a tap for pressure adjustment. The interior of the pressing can be approached through a sliding panel in its side. This pressing is directly attached to the frame which supports the rest of the machine. The frame is divided horizontally into two sections and is mounted on large industrial castors. The whole is panelled in stainless steel.

The lower section, which can be reached through two sliding doors, houses two sixteen-foot oxygen bottles connected by means of McKesson yokes to a pipe line, tapped as previously described. The "sucker-bottle" is also accessible in this lower section.

In the upper section the main mass of machinery is housed.

The power unit is a one-third horse power capacitor type electric motor, driving through a flexible coupling to a 50:1 overdrive worm reduction gear (Sonnerdale OD2), the output shaft of which carries a heavy sprocket. The pump is driven by a chain from this sprocket, and consists of the crank assembly, piston and cylinder from an overhead valve motor-cycle engine having a swept volume of 500 cubic centimetres. A flanged steel plate is attached in place of the cylinder head, and to it is clamped a one and a quarter inch rubber pipe leading to the chamber above.

The sucker pump, of the centrifugal vane type, is belt driven from a pulley on the motor shaft.

This assembly gives a final pump speed of 44 revolutions per minute; that is, the chamber is exhausted of 500 cubic centimetres of air 44 times per minute. This gives a fluctuation in pressure in it from zero to -14 centimetres of water when the chamber is empty, any positive pressure which develops being blown off by the valve in the hood.

In use, the machine is easy to handle. The chamber can be quickly heated to about 100° F. and maintained at that temperature by one of the heating globes. The upper half of the collar is removed. When the infant is received the hood is thrown back and the head is passed through the hole in the end section from inside, the neck resting on the lower half of the collar. The top half is then applied and clamped in position. The hood is closed and the machinery is set in motion. It is then entirely automatic.

A recent addition has been that of a "Perspex" pressing to fit over the infant's head as an oxygen tent.

Acknowledgements.

The production of the machine was founded on work carried out at the King George V Memorial Hospital for Mothers and Babies, Sydney.

My thanks are due to Professor B. T. Mayes for his generous advice and interest; to the King George V and Queen Mary Maternal and Infant Welfare Foundation, which made the work possible; and to Athertons, Proprietary, Limited, to the Hardie Rubber Company, to Paul and Gray, to Mr. Jack Taylor and to Mr. J. Gabriel for their willing cooperation.

Reviews.

ELEMENTARY ANATOMY AND PHYSIOLOGY.

THE second edition of "Anatomy and Physiology" for students of physiotherapy, occupational therapy and gymnastics by C. F. V. Smout and R. J. S. McDowall has been received.¹ The text is divided into two parts—the first twelve chapters being devoted to anatomy and the next fifteen chapters to physiology. The chapter on histology is adequate for the use of students. In the anatomy section a detailed description of the action of the various muscles is of particular use to the physiotherapist. The chapter on living anatomy and muscles in action is well done and clearly illustrated. The section on physiology has been enlarged and revised, attention being given to the effect of heat, exercise and massage on body metabolism. The text is clear and is profusely illustrated with plates and drawings.

RENAL HYPERTENSION.

IN view of the prevalence of hypertension and of its serious complications the publication of a monograph on renal hypertension by workers in Buenos Aires² comes as a timely contribution towards the solution of a most pressing medical problem.

In the prologue Professor Bernardo A. Houssay emphasizes the importance of the work done by the authors, E. Braun-Menéndez, J. C. Fasciolo, L. F. Leloir, J. M. Muñoz and A. C. Taquini, who extracted a substance which they termed hypertensin from the venous blood of ischemic kidneys by the action of renin on a plasma globulin called hypertensinogen or precursor of hypertensin. They demonstrated also that hypertensin was produced by incubating renin with hypertensinogen *in vitro*. The renin secreted from the kidney, although not *per se* vasoconstrictor, rapidly pro-

duced the vasoconstrictor substance, hypertensin, apparently by enzymatic action when it came into contact with the hypertensinogen of the plasma. Professor Houssay expresses the hope that as a result of this experimental work therapeutic agents which will influence the course of hypertension in man may be discovered. He warns us that we should not be alarmed if success is not attained quickly because biological progress is always slow and advises us to remember that between the production of experimental pancreatic diabetes and the discovery of insulin a period of thirty-three years had elapsed.

The monograph, which is a study of hypertension of renal origin, summarizes the present state of our knowledge, indicating what is definitely known about the problem. The similarities and differences between human and experimental hypertension of renal origin are discussed, but the wider field of human hypertension has received only incidental reference. The translator, Lewis Dexter, has not attempted to produce a word for word translation, but has endeavoured to present the subject in such a way that it would convey the authors' views to English-speaking readers, and in this he has succeeded admirably.

The book is well arranged and produced in good style. At the end of each chapter a useful summary is included. The appendix giving details of technical methods and the extensive bibliography will prove of great value to research workers. The monograph should be studied by all who are interested in the subject of hypertension.

OBSTETRICAL ANALGESIA.

THE third edition of R. J. Minnitt's little book, "Gas and Air Analgesia", is identical with its immediate precursor in all except a few minor respects.¹ Fifteen years have now passed since the author initiated the use of nitrous oxide and air inhalations for the relief of the pains of labour. The first few years which followed the introduction of his method saw remarkable enthusiasm, coupled with striking developments in the necessary apparatus. Subsequently, however, interest seems to have lapsed to a very large extent, perhaps because good results demanded much more trouble than was ordinarily practicable.

The method has never achieved popularity in this country. Such application as it has enjoyed has been at best tentative and inconclusive. The use of nitrous oxide and oxygen, or of ether and air by means of the Small apparatus, has given more certain and generally better results. Perhaps the conditions of domiciliary obstetrics in England offer better scope for the use of gas and air analgesia, which even if not very efficient at least provides some grateful measure of relief. The comprehensive regulations of the Central Midwives Board, as detailed in this work, indicate a substantial utility for the procedure, as well as the necessity for its proper teaching and strict control. But for patients in hospital or under direct medical supervision the use of more potent and certain agents than gas and air seems to be desirable.

Nevertheless, the author substantiates a number of highly important considerations. Notable among these is the necessity for the preliminary tuition of the patient in the use of the method, commencing even months before the time of confinement. He stresses well the futility of expecting a woman in the throes of advanced labour either to cooperate in or to benefit from the use of gas and air analgesia. In addition, he shows that the failure of the method, after adequate preparation and trial, may well indicate the presence of some complication to delivery. No doubt enthusiasm, perseverance and a minute attention to detail would secure useful results, but few indeed, prospective mothers included, are inclined to exercise such qualities during the urgent stress of parturition.

It is unfortunate that, in acknowledging the limitations of his method, the author does not emphasize the fact that his analgesic mixture contains only about 11% of oxygen. Thus its sustained use during actual delivery, as well as its reinforcement by potent volatile agents like ether or trichlorethylene, involves the gravest of risks. A further striking feature of his presentation is that no clinical or laboratory report of later date than the year 1934 is quoted in support of his thesis. Hence the conclusion that few have discovered substantial merit in the procedure seems to be inescapable.

¹ "Anatomy and Physiology for Students of Physiotherapy, Occupational Therapy and Gymnastics", by C. F. V. Smout, M.D., M.R.C.S., L.R.C.P., and R. J. S. McDowall, M.D., D.Sc.; 1944. London: Edward Arnold and Company. 9" x 6", pp. 425, with many illustrations. Price: 30s. net.

² "Renal Hypertension", by Eduardo Braun-Menéndez, Juan Carlos Fasciolo, Luis F. Leloir, Juan M. Muñoz and Alberto C. Taquini; translated by Lewis Dexter, M.D.; 1946. Springfield, Illinois: Charles C. Thomas. 9" x 6", pp. 451, with illustrations. Price: \$6.75.

¹ "Gas and Air Analgesia", by R. J. Minnitt, M.D. (Liverpool), D.A. (R.C.P. and S., England); Third Edition; 1947. London: Baillière, Tindall and Cox. 7" x 4½", pp. 88, with many illustrations. Price: 5s.

The Medical Journal of Australia

SATURDAY, DECEMBER 27, 1947.

All articles submitted for publication in this journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

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HOPE.

A WELL-KNOWN Australian consultant, on being called many years ago to see in consultation with a general practitioner a woman who to all appearances was high unto death, was met as he came from the patient's bedside by her distraught and fearful husband. To the astonishment of the medical attendant, the consultant, with the uncanny insight that he often showed, put his hand on the man's shoulder and said: "My dear Mr. X, we must not be as those that are without hope in this world, for then shall we be of all men most miserable. What I mean is . . ." He then went on to describe the patient's dire condition; he gave a true statement of the position, as the husband asked him to do, and admitted, as he had to, that the outlook was not bright. But into all that he said that he was able to infuse a centre core of hope. That in this instance hope was justified and recovery followed is of secondary importance to the demonstration of the fact that hope is an indispensable therapeutic agent and that a doctor must be able to create it among his patients if they are without it. Incidentally we may remark that few practitioners would be able to approach the subject with the diction used by the consultant in this story. But hope should be part of every man's equipment, and from that point of view we shall consider it first.

Hope is commonly spoken of as the anchor of the soul, and the words are taken from the epistle to the Hebrews in the New Testament. The metaphor is apt. If we think of man sailing the sea of life in a ship without an anchor we can easily imagine the batterings that he may encounter or the shipwreck that he may make through lack of the one piece of equipment. Very few men, if any, set sail without hope of some kind. It is true that they may suffer such grievous misfortunes that the temptation to perpetual despair cannot be resisted. In such circumstances it is easy to forget that winds do not always blow from the same quarter. Sometimes it is wise to furl all sail and to travel with bare masts before the wind. The stronger or more experienced seaman may be justified in sailing on

a different tack. Fielding wrote that, considering the unforeseen events of this world, we should be taught that no human condition should inspire men with absolute despair. A great deal will depend on the kind of anchor we choose for our initial equipment, the kind of hope that we cherish. Hope may be looked on as of two kinds. On the one hand there is hope, selfish, materialistic or worldly; on the other is found altruistic or unworldly hope. The distinction is not absolute, for a man may hope for advantages for self that he may use his gains for the good of his fellow man; he may again have mixed intentions and claim a good percentage, a large cut, of the advantages for himself before he thinks of or makes distribution to anyone else. The first kind of hope is sung by Omar Khayyám:

The worldly Hope men set their Hearts upon,
Turns Ashes—or it prospers; and anon
Like Snow upon the Desert's dusty Face,
Lighting a little hour or two—is gone.

Some men may have a philosophy of life which leads them to look upon the "little hour or two" as worth years of bearing and hoping. Experience surely teaches that they will have many long days in which to think about their mistaken notions. But even hope of the most self-denying kind is not always realized and since "hope deferred maketh the heart sick", a watch must be kept against despair. Bertrand Russell in an essay on effort and resignation points out that many people get into a fret and fury over every little thing that goes wrong and so waste a great deal of energy that might be more usefully employed. Even in the pursuit of really important objects, he states, it is unwise to become so deeply involved emotionally that the thought of possible failure becomes a constant menace to peace of mind. Russell reminds his readers that Christianity teaches submission to the will of God, and he thinks that even for those who cannot accept this phraseology there should be something of the same kind pervading all their activities. We also do well to remember that according to Saint Paul we are saved by hope. Russell thinks that resignation is of two kinds, one rooted in despair, the other in unconquerable hope. It is clear that one whose resignation is of the second kind will be vastly different from a man who adopts the former variety. "Hope which is to be unconquerable must be large and impersonal." No man need be in complete despair if he is interested in the future of mankind apart from his own participation in it. At this point we may perhaps remember that hope has been named as one of the three cardinal graces, being so named with faith and love. The man who would lay claim to unconquerable hope must, so it would appear, be endowed in some measure with faith and love—faith in the ultimate triumph of truth and goodness, and love of his fellow man. Moreover, the man of unconquerable hope will know that what he hopes for will eventually come to pass.

Not all of us can claim to be numbered among the men of unconquerable, unselfish, unworldly hope, but every man, if he knows what is possible of achievement, can at least turn his face in the direction in which attainment lies. The medical practitioner, as we have already seen, has to inspire his patient with hope. He must, if he is to do this, have within himself the elements of hope that are allied to faith and love. He will make his patient feel that there is hope for the future and also that life

is worth living, that it has a meaning and a purpose. Among the patients seen in any general practice there will be few who have bothered to think about hope in the abstract; most of the patients will have led their lives in such a way that hope of some kind is part of their make-up, and that if it does not dominate their lives, they will be able to draw on it when necessary. If this hope is not of a purely selfish and material type it should not be difficult for a well-equipped doctor to help them. If they have always sought self and material advantage or if they have become disheartened and hopeless by repeated failure, the doctor will be hard put to it to give them the right attitude of mind. This is not a matter of purposeful words to the sufferer—a matter of instruction or preaching. The result comes sometimes from the interaction of qualities that are present in both patient and doctor. The tradition of medicine has a great deal to do with it and the patient recognizes intuitively in his attendant someone in whom he can have complete confidence. All illnesses are not so dire as that to which reference has been made at the outset of this discussion; there may be no need for a special access of hope towards recovery. In illnesses that are not severe, however, the foundation of confidence in the wisdom and discernment of the practitioner is being laid. Thus we see that the responsibility of the practitioner is never to be put on one side. Finally, we know that, in severe illness when recovery is impossible, the same qualities in the medical practitioner which endow the patient with hope towards recovery will help to give him courage in the fight that he is destined to lose.

Current Comment.

A TEST OF CLINICAL OBSERVATION.

THE increasing use in diagnosis of laboratory tests and special diagnostic gadgets has evoked protest from time to time on the part of the keen clinician. A decline in the cultivation of clinical judgement is certainly to be deplored, especially in a country such as ours which scatters its medical practitioners widely and throws them on their own resources. During the recent war many medical officers in isolated aid posts and dressing stations or in prisoner-of-war camps learned not only to value the decisions that could be confidently based on clinical sense, but also to regret their past failure to develop and to evaluate that sense. On the other hand, reliance on clinical judgement can be a trap if its scope and reliability are not assessed. The ideal, especially for the student, is not to rely on either the laboratory test or clinical judgement, but to be constantly comparing the findings of the one with those suggested by the other. An interesting example of this is found in a series of experiments on the appreciation of cyanosis carried out by Julius H. Comroe and Stella Botelho of the University of Pennsylvania.¹ By the administration of varying oxygen concentrations to 20 normal white males they produced varying degrees of arterial oxygen saturation. This was measured by means of an oximeter, a miniature photo-electric colorimeter, applied to the ear. At the same time 127 observers (105 medical students and 22 physicians) recorded their observations regarding cyanosis from examination at half-minute intervals of the face, right ear, hands, fingers or nail-beds. The experiment was carefully planned and provided a nearly ideal set of circumstances for observation. Some of the

physicians were cardiologists and anaesthetists; care was taken to ensure that the students appreciated normal colour and varying degrees of cyanosis. The results were illuminating. The majority of the observers did not detect the presence of definite cyanosis until the arterial oxygen saturation fell to approximately 80%; 25% of observers did not note definite cyanosis even at arterial saturations of 71% to 75%. There were considerable variations in the ability of an observer to note cyanosis in different subjects or even in the same subject at different times. There were wide variations in colour estimations when five to ten observers watched cyanosis develop in the same subject at the same time. It is emphasized that every effort was made to eliminate the obviously erratic observation and the conditions of the experiment were designed as far as possible to take into account the well-known factors which cause variation in the correlation between the degree of arterial oxygen saturation and the amount of visible cyanosis. It still seemed to be an inescapable conclusion that the appreciation of cyanosis varied with the individual observer and that experience and training were not always sufficient to eliminate fallacious impressions. Further confirmation was given to the conclusion of Lundsgaard and Van Slyke in 1923 that visible cyanosis is not usually produced until the arterial oxygen saturation is about 80% in an otherwise normal subject.

The reaction of Comroe and Botelho to these findings is to advocate the more frequent measurement in clinical practice of arterial oxygen saturation from samples taken by means of arterial puncture. In this way they suggest that oxygen therapy can be controlled more rationally. Opinions will vary greatly as to how far this is justified; its practical use is surely rather limited. The important thing from the viewpoint of the average practitioner is to realize quite frankly the limitations of his clinical judgement and then to use it to the full extent of its real worth.

HUMAN AND BOVINE CASEIN.

THAT there are some differences between the casein of human milk and that of cow's milk was realized as early as the eighteenth century. It is easy to prepare casein from cow's milk by acidulation with acetic or hydrochloric acid or indeed with any dilute acid which does not denature protein, but it is by no means a simple matter to do the same with human milk, for special attention must be paid to the degree of dilution, the temperature and the amount of acid added. This was the first divergence between the two to be noted, but others came later. At one time casein was supposed to be a nucleoprotein, but it was soon discovered that the purine and pyrimidine groups which are essential components of the nucleoprotein molecule are not represented in casein and so this was classified as a phosphoprotein. Nucleoproteins, when subjected to peptic digestion, give an insoluble residue of nuclein; casein from cow's milk also gives on similar treatment an insoluble residue, but it is not nuclein. Kossel in 1891 suggested the term paranuclein and Hammarsten in 1894, pseudonuclein. Now human casein does not yield on peptic digestion a precipitate of pseudonuclein; all that may be observed is a deepening of opalescence. Nutritional experiments early demonstrated that feeding with human milk leads in the infant to better utilization of calcium and phosphate than feeding with cow's milk.

The differences between the two caseins have been the subject of a laborious inquiry by Olof Mellander under the auspices of the Institute of Medical Chemistry and the Paediatric Clinic in the University of Upsala.¹ Human casein and cow casein have of course many points of resemblance; they are both phosphoproteins and the

¹ *The American Journal of the Medical Sciences*, July, 1947.

¹ Olof Mellander: "On Chemical and Nutritional Differences between Casein from Human and Cow's Milk", *Upsala Läkareförenings Förhandlingar*, June 30, 1947, page 107.

amino acids they yield on drastic hydrolysis are almost identical; they are both organic acids present in milk as calcium salts, but there are differences and these merit investigation on account of the admitted superiority of human casein in infant feeding. The outstanding results of Mellander's research may be enumerated as follows. When the caseins are digested *in vitro* with pepsin-hydrochloric acid, the disintegration of the cow casein is more rapid. If the amount digested is plotted against the time, the graph for human casein is decidedly flatter. The same occurs when gastric juice is taken from infants and used in laboratory digestion; also with *in vivo* experiments in the human stomach, both infantile and adult. Digestion with trypsin *in vitro* gives a similar divergence in the graphs, but the interesting fact was observed that if during the tryptic proteolysis some activated phosphatase was added to the digest, then the human graph assumed a steeper gradient and converged to meet the cow graph. No such change followed the addition of inactivated phosphatase. The key to this dissimilarity is in Mellander's opinion the existence of phospho-peptones which are enzyme-resistant peptides united to PO₄ groups. Disintegration with strong proteoclastic agents has demonstrated that the amino acids in phospho-peptone are glutamic acid, isoleucine and serine, but there may be individual differences. The main point is that phospho-peptone is highly resistant to enzyme proteolysis, but is attacked by phosphatase which liberates the amino acid complex from the PO₄ union and permits this to be hydrolysed by trypsin. In Mellander's view phospho-peptone is absorbed as such and to the absorption of phospho-peptone he ascribes the superiority of human casein, for the more acid reaction of the intestinal contents of breast-fed infants hinders the action of phosphatases which require a more alkaline medium. It should be mentioned that he has prepared the calcium salt of phospho-peptone and finds this water-soluble and diffusible. This absorption of phospho-peptone is so far an assumption and awaits proof. However, Mellander's contention that phospho-peptone plays an important part in nutrition and his plea that further study should be given to its chemistry and fate, are well worthy of the attention of biochemists.

FURTHER REPORTS ON "BENADRYL".

THE introduction of a new anti-histaminic drug, "Benadryl", was discussed in these columns on May 17, 1947, and its therapeutic possibilities were summarized. Particular reference was made to reports of its undesirable side effects. The drug has attracted a good deal of attention and, as a result of its widespread use, data are accumulating on which to base a better assessment of its value. A report on its use in the treatment of 137 patients has been recently presented by Lester S. Blumenthal and Morris H. Rosenberg.¹ The patients treated were suffering from a wide variety of conditions and in a number of cases the group of patients was too small to warrant the drawing of any conclusions. The larger groups, however, are of interest. Striking results followed the treatment of 29 patients with urticaria mainly due to drugs or foods; 24 received pronounced and speedy relief, one obtained moderate relief and four (all with reactions to drugs: penicillin, phenobarbitone, sulphathiazole and tetanus antitoxin respectively) were not relieved. Of 16 patients with contact dermatitis it is claimed that 12 obtained pronounced relief and four moderate relief. Varying degrees of relief are also claimed for small groups of patients with other conditions causing pruritus. It is of interest at this juncture to compare the results of Blumenthal and Rosenberg in the treatment of skin affections with those reported by Paul A. O'Leary and Eugene M. Farber of the Mayo Clinic.²

In the treatment of urticaria O'Leary and Farber obtained most satisfactory results. Of 35 patients with acute urticaria who were given 50 to 100 milligrammes of "Benadryl" every three to four hours, 20 were completely relieved in from one to two days, 12 experienced improvement and three were not benefited; relief of pruritus usually occurred in twenty to sixty minutes. Of 75 patients with chronic urticaria, for which a great many forms of treatment had been tried, 48 were entirely relieved while taking "Benadryl", 17 had fewer lesions and less pruritus, and 10 obtained no benefit; the condition recurred on cessation of the drug, but most of the patients appeared to be able to tolerate the drug for extended periods. O'Leary and Farber were not impressed with the value of "Benadryl" in the treatment of contact dermatitis and found its antipruritic effect very limited. A small number of their patients who had scleroderma and acrosclerosis obtained effective relief from "Benadryl". Of a total of 186 patients discussed in their report, 58 experienced side reactions, but only 10 found these severe enough to warrant discontinuance of the drug.

The next group of importance in the report by Blumenthal and Rosenberg consists of 23 patients who had hay fever. Of these 15 experienced pronounced relief, five moderate relief and three no relief; prolonged administration did not lessen the drug's efficacy, though the degree of relief obtained varied in some cases from time to time. Twelve patients with bronchial asthma were treated, but only one obtained pronounced relief; three were moderately relieved and eight showed no improvement, though some of the latter were helped to sleep by the drowsiness caused as a side effect. Most of the reports on the treatment of bronchial asthma with "Benadryl" are as disappointing as this, but some interesting results have been presented by Abner M. Fuchs, Philip M. Schulman and Thomas H. McGavack of New York.³ They subjected the drug to a particularly stringent test by administering it to 30 adult asthmatics who had experienced asthmatic attacks for many years with little relief from the usual asthmatic remedies. The majority of the patients were middle aged or elderly individuals with advanced stages of bronchial asthma and with organic disease of the heart, lungs or paranasal sinuses. From doses of 150 to 400 milligrammes daily seven patients experienced symptomatic relief which ceased when the drug was withdrawn; these patients had no complicating conditions in the heart or lungs and their asthmatic symptoms could not be attributed to acute respiratory infections. Twenty-three of the patients experienced no relief whatever from "Benadryl" alone; all of them showed organic changes in the lungs or heart or an active sinus infection. However, when the drug was prescribed in conjunction with other anti-asthmatic remedies such as ephedrine, potassium iodide or "Aminophylline", it proved of further help in relieving the symptoms. "Benadryl" did not immediately influence severe asthmatic episodes, regardless of their aetiology. Drowsiness as a side reaction was considered both an advantage and a disadvantage.

Blumenthal and Rosenberg have some interesting remarks in their report on the intravenous administration of "Benadryl". They consider that this method of administration aids in assessing the use of the drug in those conditions in which its efficacy is doubtful, as it simplifies the elimination of other factors.

All the reports mentioned contain reference to the side effects of the drug, which are not negligible. The drug should not be prescribed indiscriminately or without adequate supervision; nevertheless, its beneficial effects outweigh its disadvantages in many cases. The therapeutic principle involved is undoubtedly a useful one. Fuchs and his colleagues in their paper indicate that a new but closely allied drug has been synthesized which is expected to have greater therapeutic value and to be better tolerated; it is to be hoped that this will be so.

¹ The Journal of the American Medical Association, September 6, 1947.

² The Journal of the American Medical Association, July 19, 1947.

³ The American Journal of Medicine, September, 1947.

Abstracts from Medical Literature.

MEDICINE.

Folic Acid in Agranulocytosis.

D. A. K. BLACK AND S. W. STANBURY (*The Lancet*, June 14, 1947) report two cases of agranulocytosis in which granulocytes returned to the circulating blood within forty-eight hours of the administration of adequate doses of folic acid. The dose given in each case was 20 milligrammes daily, but in one an initial dose of 100 milligrammes was given. Penicillin was found to be valuable in maintaining life during the period of agranulocytosis.

The Effect of Smoking on Vasodilatation.

GRACE M. ROTH AND C. SHERARD (*American Heart Journal*, May, 1947) recorded the blood pressure and skin temperature of sixty-five persons before and after they had smoked two cigarettes, and made these recordings while the subjects were fasting and while they were flushed with food or alcohol (the equivalent of two fluid ounces of whisky). It was found that the vasodilatation which follows the ingestion of alcohol does not take place immediately, but only after sufficient alcohol has been absorbed. The height of vasodilatation may not be reached until fifty to sixty minutes after the ingestion of alcohol, but once the height has been reached it persists for sixty to ninety minutes. Smoking tests, made at periods varying from thirty to ninety minutes after the ingestion of alcohol or of food, demonstrated that vasoconstriction from smoking could not be prevented by the alcohol or food at any time during the presence of vasodilatation. The authors concluded that their study did not substantiate the common belief that drinking a cocktail would nullify the effect of smoking.

Arthritis.

P. KAUFMAN, R. D. BECK AND R. D. WISEMAN (*The Journal of the American Medical Association*, June 21, 1947) report a death following vitamin D ("Ertron") therapy for arthritis. They state that several instances of vitamin D intoxication have been reported lately, with one death, associated with calcification in the renal tubules. The authors' patient had taken daily 150,000 to 200,000 units of vitamin D (as "Ertron") without improvement. She died of uræmia. Extensive deposits of calcium were found *post mortem* in many of the organs including the heart and renal tubules. Hypercalcaemia and azotæmia were observed before death. X-ray examination revealed massive deposits of calcium around the joints.

Reiter's Syndrome.

R. H. YOUNG AND E. G. McEWEN (*The Journal of the American Medical Association*, August 23, 1947) describe fourteen patients with arthritis following bacillary dysentery. Seven patients had arthritis, urethritis and conjunctivitis after dysentery and these were grouped under Reiter's syndrome. The onset of symptoms was from twelve to twenty-four days after the onset of dysentery. Shoulders, knees, wrists,

ankles, hips, tarsus and elbows were affected in different patients. The sedimentation rate was high, often above 100 millimetres per hour. X-ray examination of joints showed no bony change. Treatment was symptomatic. Salicylates and sulphonamides were without effect. The condition was frequently prolonged, though the urethritis and conjunctivitis were usually of brief duration.

Di-Insulin.

A. SLESSOR AND T. NICOL (*The Lancet*, June 14, 1947) report their experiences in the use of di-insulin for the treatment of diabetes. Di-insulin is a new Danish preparation, consisting of equal parts of insulin and of a slowly acting derivative, phenylureido-insulin or iso-insulin. The protracted effect of the iso-insulin component was demonstrable in normal persons and in diabetics requiring less than fifty units of insulin daily. In the latter a single injection of di-insulin controlled the blood sugar throughout the twenty-four hours; but in diabetics requiring more than fifty units a day, one injection of di-insulin was unsatisfactory, producing hypoglycaemia from three to eight hours after injection and not controlling the blood sugar content in the evening and during the night. The authors suggest that the insulin component in the di-insulin mixture is too high.

"Alcoholic Cirrhosis."

R. S. BOLES, R. S. CREW AND W. DUNBAR (*The Journal of the American Medical Association*, June 21, 1947), discussing cirrhosis of the liver, state that there is no specific "alcoholic cirrhosis" of the liver. This is a popular view. It is said, however, that alcohol associated with diets deficient in proteins and vitamins especially of the B group and with diets of low carbohydrate and high fat content cause cirrhosis. The authors analysed 142 cases of portal cirrhosis. In 50 cases out of 64 in which an accurate history was obtained, a positive history of alcoholism was obtained. The authors find that alcohol cannot be absolved as a contributing cause of cirrhosis. They deny that there is any proof that cirrhosis is mainly nutritional.

Longevity in Aneurysm of the Thoracic Aorta.

R. KAUNTZE (*British Heart Journal*, April, 1947) reports the case of a man who is alive and in reasonable health twenty-six years after the diagnosis of a large aneurysm of the thoracic aorta.

Influenzal Meningitis.

D. MAGNER, H. WOOD AND M. M. COAKWELL (*The Canadian Medical Association Journal*, July, 1947) report three cases of influenzal meningitis with recovery. The symptoms in all three cases developed in infants, aged five months to three years. Headache, fever, neck rigidity and stupor, with a cloudy spinal fluid, were found. The spinal fluid contained between 400 and 6000 white cells, with 80% to 90% neutrophile cells. Incubation of centrifuged spinal fluid yielded *Hæmophilus influenzae* on the second and third days. In two cases treatment with suladiazine two to four grammes daily was given early by the intravenous route, and later intramuscular injections of sulphadiazine in similar dosage, fol-

lowed by 0.5 to 3.0 grammes daily by mouth for five to seven days. Penicillin was given intrathecally, 10,000 to 20,000 units daily, and 100,000 to 300,000 units intramuscularly, each day for five to thirty days. In one case after the sixth day streptomycin 20,000 units was given intrathecally, repeated after two days, and 200,000 units of streptomycin were given intramuscularly each day for two weeks. All patients recovered. The authors suggest that there was a synergic effect in the use of sulphadiazine and penicillin in these instances.

The Induction of Bronchogenic Carcinoma.

E. S. HORNING (*The Lancet*, August 9, 1947) has induced bronchogenic carcinoma in mice from subcutaneous grafts of adult lung tissue impregnated with 20-methylcholanthrene. In one strain of the mice the tumour incidence was increased if the lung grafts were impregnated with stilbestrol in addition to the carcinogen.

Morphine Given Intravenously for Paroxysmal Tachycardia.

L. G. SABATHIE (*American Heart Journal*, May, 1947) states that a patient suffering from paroxysmal ventricular tachycardia, which was not affected by quinidine, was promptly relieved by an intravenous injection of morphine. Nine out of ten further patients responded to similar treatment; in these patients "favourable results" were observed from ten to thirty minutes after the injection. The dose varied between one and four centigrammes (one-sixth and two-thirds of a grain); the interval between doses was half an hour to two hours. No undesirable effects were produced, but a "very hypnotic" action of the drug was observed.

Renal Lesions in Burns.

P. C. MARTINEAU AND F. W. HARTMAN (*The Journal of the American Medical Association*, May 31, 1947) report the effect of severe cutaneous burns on the kidneys. The main findings are degenerative changes in the tubules, congestion of capillaries and venules, tubular casts of the products of intravascular hemolysis, and lesions due to infection. These changes are due to shock. Oliguria, anuria and extrarenal azotæmia may develop and intravascular hemolysis with hemoglobinuria occurs frequently. The patient usually recovers from these effects, but they may lead to renal insufficiency and death.

Renal Deficiency.

V. H. MOON (*The Journal of the American Medical Association*, May 31, 1947) discusses renal deficiency associated with shock. Oliguria, anuria, retention of nitrogenous wastes, and later uræmia, are frequently noted in association with shock. Dark, smoky urine of high specific gravity containing albumin, red cells and granular casts has often been recorded, if the symptoms last some days. Shock may accompany burns, freezing, vascular occlusion, intestinal strangulation, heat stroke, sunburn, visceral perforations, the effects of various poisons, drugs and venoms and of peptone, anaphylaxis, severe infections, surgical operations, transfusions and other conditions. Parenchymatous degeneration and tubular necrosis are noted in the

kidneys in the presence of shock. At high altitudes in aviation, circulatory collapse resembling shock has often developed, with renal changes as above. The crush syndrome produces the same effects. The renal condition was formerly known as acute parenchymatous or tubular nephritis.

Bed Rest in Rheumatic Fever.

W. B. ADAMSON (*American Heart Journal*, May, 1947) has considered the possibility of psychosomatic or functional disability resulting "inadvertently" from, or at least during, the orthodox management of rheumatic fever. He believes that adequate therapy can probably be accomplished with a shorter period of bed rest than was formerly thought necessary, and that physicians of understanding, willing to practise intelligent psychotherapy, can prevent part of the disability resulting from rheumatic fever.

Infectious Hepatitis.

W. P. HAVENS (*The Journal of the American Medical Association*, June 21, 1947) discusses the aetiology of infectious hepatitis. He states that it is due to a filtrable virus, probably transmitted by the oral intestinal route. It has been transmitted to human volunteers. The condition is very similar to homologous serum jaundice, a name applied to hepatitis following the administration of transfusions, vaccines and convalescent sera, and said to be due to an artificial infection by this means.

Extrarenal Azotæmia.

E. T. BELL AND R. C. KNUTSON (*The Journal of the American Medical Association*, May 31, 1947) have reported the effects of extrarenal azotæmia and tubular disease. Many causes may produce the condition, the essentials of which are oliguria or anuria and azotæmia with no anatomical lesion in the kidneys. Deprivation of fluid from whatever cause, intestinal obstruction and excessive diarrhoea could cause extrarenal azotæmia. Low blood pressure in pneumonia, coronary occlusion, fractures and other serious disabilities were often associated with azotæmia. Post-operative shock with fall of blood pressure, and reflex anuria associated with operations on kidney, ureter, bladder, colon and gall-bladder, were often noted with oliguria and azotæmia. In the terminal stages of many diseases azotæmia may occur. Prostrating infections, especially pneumonia, heart failure, carcinoma, diabetic coma and other serious disorders were often associated with a raised blood urea. Hemorrhage into the gastro-intestinal tract, usually from bleeding ulcers, causes an increase of blood urea even to uremic levels at times, and the crush syndrome produces similar effects.

Hepatic Disease.

JAMES F. WEIR (*The Journal of the American Medical Association*, June 14, 1947), in discussing treatment of hepatic disease, states that until recent years treatment of liver disease was largely symptomatic. Diets low in all constituents were prescribed, and purges, restriction of fluid and salt, and organic mercurial diuretics were ordered. Since 1920 a scientific approach has been adopted. The liver stores carbohydrates as glycogen, controls protein metabolism and "works over" fat. It is associated with vitamin metabolism. In treatment

nowadays a diet is given with a high carbohydrate, and later with a high protein content with vitamins, liver extract and yeast. Choline and methionine have also been given. The author states that none of these procedures produced any changes in the duration of the illness, weight curve or those functions of the liver studied. Apart from the suggestion that a diet rich in carbohydrate and vitamins, and additional protein (a new concept) may benefit patients with hepatic disease, there has apparently been no advance in the treatment in the last thirty years. The author states that the ability of the patient to eat the diets suggested, and the nature of the disease, are of some importance.

Acquired Hemolytic Anæmia.

P. L. MOLLISON (*Clinical Science*, July 17, 1947) concludes from investigations of the survival time of transfused erythrocytes that there are two main kinds of hemolytic anæmia: one in which not only the patient's own erythrocytes but any erythrocytes introduced into his circulation are destroyed at an increased rate; and another in which the patient's own erythrocytes, on account of some defect, congenital or acquired, are more rapidly destroyed than usual, but normal erythrocytes introduced into the circulation survive for a normal time. All the cases of acquired hemolytic anæmia investigated have been of the former kind, while the latter kind includes patients with familial hemolytic anæmia, nocturnal hemoglobinuria and pernicious anæmia. Normal survival of transfused erythrocytes has the following characteristics. Firstly, the number of erythrocytes surviving is inversely proportional to the time since transfusion, and, secondly, elimination is complete between the ninetieth and one hundred and thirtieth days. The survival of normal erythrocytes transfused to eleven patients with acquired hemolytic anæmia was grossly diminished in every instance, elimination being sometimes complete in five or six days. It was found that the differential agglutinin method of estimating the survival of transfused erythrocytes offered a means of distinguishing cases of familial and acquired hemolytic anæmia.

Progesterone in the Treatment of Migraine.

I. SINGH *et alii* (*The Lancet*, May 31, 1947) report that they have treated with progesterone 23 women suffering from migraine, in whom the attacks tended to occur at some particular phase of the menstrual cycle. In all 23 it was shown that the administration of oestrogens would provoke an attack, and in all 23 progesterone was effective in relieving or preventing migraine. The dosage of progesterone was usually five milligrammes; or two milligrammes given on alternate days for several doses.

Homologous Serum Jaundice.

I. H. SCHEINBERG, T. D. KINNEY AND C. A. JANEWAY (*The Journal of the American Medical Association*, July 5, 1947) discuss hepatitis following blood transfusion, and its relationship to infectious hepatitis. They suggest that the agent in both conditions is probably a virus. Homologous serum jaundice follows the receipt of blood, plasma or its derivatives in forty to one hundred

and eighty days. In this series eleven cases of hepatitis occurred among 2443 transfusions of blood or plasma. There were four deaths. Most of the patients who contracted jaundice suffered from serious intraabdominal disease, Addison's disease or typhoid fever, in which nutrition was affected. Although a relationship to infectious hepatitis is suggested, none of the donors had suffered from that disease, so far as is known. It is suggested that pooling of plasma should be curtailed, and that a greater effort should be made to detect infectious donors who have suffered from hepatitis or been exposed to such infection. Fever, icterus, and enlarged liver and spleen should also exclude a prospective donor.

Massive Doses of Adrenaline in Peripheral Circulatory Failure.

CHRISTINA C. CHRISTIE *et alii* (*The Lancet*, August 9, 1947) administered to a man suffering from pneumonia with toxic peripheral circulatory collapse very large doses (285 millilitres) of a 1:1000 solution of adrenaline hydrochloride incorporated in intravenous infusions during a period of about four days. The patient recovered, though he was almost pulseless before the treatment was begun and his blood pressure fell away very much when the treatment was temporarily suspended.

Relapse after "Dicumarol" Poisoning.

G. THORSÉN (*The Lancet*, September 20, 1947) describes the case of a patient who had received an overdose of "Dicumarol", from the serious hemorrhagic effects of which she was rescued by blood transfusion and the administration of vitamin K. She was discharged well from hospital, but nine weeks later returned with fresh bleeding and a low plasma prothrombin level. There was no evidence or likelihood that she had taken more "Dicumarol". The author advises that a careful watch should be kept for late sequelæ after "Dicumarol" therapy.

Syncope from an Overactive Carotid Sinus Reflex.

H. L. SMITH (*American Heart Journal*, May, 1947) has studied 85 patients with overactive carotid sinus reflex. Males outnumbered females by five to one and the average age of the patients was fifty-six years. The leading symptoms were vertigo and unconsciousness, occurring in attacks, occasionally precipitated by change of posture, turning the head, looking upward or pressure on the neck. Phenobarbitone was found to be the best drug with which to combat the condition. Denervation of the carotid sinus was "not entirely satisfactory".

The Myocardial Depression of Shock.

C. J. WIGGERS (*American Heart Journal*, May, 1947) has investigated, by means of exsanguination experiments in dogs, the depression of myocardial functional efficiency which occurs in association with hemorrhagic shock. It was found that if severe reduction in arterial blood pressure is prolonged beyond a certain period, restoration of the blood volume no longer restores the stroke volume of the heart and deviation of ST in the electrocardiogram is found to have developed.

Bibliography of Scientific and Industrial Reports.

THE RESULTS OF WAR-TIME RESEARCH.

During the war a great deal of research was carried out under the auspices of the Allied Governments. It has been decided to release for general use a large proportion of the results of this research, together with information taken from former enemy countries as a form of reparations. With this end in view, the United States Department of Commerce, through its Publication Board, is making a weekly issue of abstracts of reports in the form of a "Bibliography of Scientific and Industrial Reports". This bibliography is now being received in Australia, and relevant extracts are reproduced hereunder.

Copies of the original reports may be obtained in two ways: (a) Microfilm or photostat copies may be purchased from the United States through the Council for Scientific and Industrial Research Information Service. Those desiring to avail themselves of this service should send the Australian equivalent of the net quoted United States price to the Council for Scientific and Industrial Research Information Service, 425, St. Kilda Road, Melbourne, S.C.2, and quote the PB number, author's name, and the subject of the abstract. All other charges will be borne by the Council for Scientific and Industrial Research. (b) The reports referenced with an E number may be obtained in approved cases without cost on application to the Secondary Industries Division of the Ministry of Post-War Reconstruction, Wentworth House, 203, Collins Street, Melbourne, C.I. Copies of these are available for reference in public libraries.

Further information on subjects covered in the reports and kindred subjects may be obtained by approaching the Council for Scientific and Industrial Research Information Service, the Secondary Industries Division of the Ministry of Post-War Reconstruction, or the Munitions Supply Laboratories (Technical Information Section), Maribyrnong, Victoria.

PB L 55807. HARVARD UNIVERSITY. GRADUATE SCHOOL OF BUSINESS ADMINISTRATION. Altered posture and stereo acuity. June, 1942. 18 pp. Price: Microfilm, \$1.00; Photostat, \$2.00.

A total of 84 experiments were carried out in the study of the effects of posture on stereo range estimates. Fifty-three of these experiments were concerned with the response to altered posture on the tilt table and with the response to lowered blood pressure (nitroglycerin) administered during the process of making range estimates. The later experiments were carried out both while sitting and during tilt table experiments. Thirty-one experiments were carried out during periods of prolonged standing (three hours). The general conclusion from these postural studies is that stereo acuity remains relatively unaffected, that is, the changes in precision were less than twelve seconds of arc, regardless of the fairly severe physiological effects resulting from the altered posture imposed by these experiments. Tables and graphs are included.

PB 50833. BRAY, CHARLES W. Final report and bibliography of the Applied Psychology Panel, NDRC. (OSRD Rept. 6668; NDRC Applied Psychology Panel Rept. 740.) June, 1946. 72 pp. Price: Microfilm, \$2.00; Photostat, \$5.00.

The Applied Psychology Panel began its work on June 20, 1942, as the Committee on Service Personnel—Selection and Training—of the National Research Council. On October 7, 1943, the panel was formed to continue the work of the committee, and the latter was dissolved. The work of the two groups represented a single, coordinated approach to the human being considered as an instrumentality of war. Hence the panel and committee studied selection, classification and training of service personnel and human needs and capacities in relation to the design and operation of military equipment. The work of the panel and committee is described in their reports. These are listed in the present bibliography.

PB 50320. FESTINGER, LEON, AND WARNER, SEYMOUR. A test of decision time: Reliability and generality. (CAA Div. of Res. Rept. 48.) September, 1945. 51 pp. Price: Microfilm, \$2.00; Photostat, \$4.00.

This report grew out of an interest in determining the feasibility of predicting the success of a pilot in making prompt decisions in conflict situations, and describes two

studies concerned with the problem. Part I describes the development of a visual line test which provides a measure of the increase in decision time in a conflict situation. Part II describes a study of the "generality" of the decision-time measure, using the test discussed in Part I and three other tests. Drawings, photographs, tables and graphs are included. Appendix A presents correlations between base time and conflict time. Research work was done at the University of Rochester, N.Y.

PB 50306. GELDARD, FRANK A. A study of the sleep motility of student pilots. (CAA Div. of Res. Rept. 28.) April, 1944. 18 pp. Price: Microfilm, \$1.00; Photostat, \$2.00.

In the early days of research on problems involved in the selection and training of aircraft pilots, one of the principal areas under investigation was that of the emotional aspects of flight training, and a study of movements during sleep was undertaken in 1939. In order to investigate this sleep behaviour a specially constructed instrument (the Simmons kinetograph, slightly modified) was attached to the beds of a class of twelve student pilots undergoing C.P.T. training at the University of Virginia. This instrument records on a graphic record all of the major (trunk) and minor (head and limb) movements of the student while he is asleep. Tables present results.

PB 50324. SPENCE, KENNETH, W., *et alii*. The effect of massing and distribution of practice on the S.A.M. complex coordination test. (CAA Div. of Res. Rept. 53.) December, 1945. 25 pp. Price: Microfilm, \$1.00; Photostat, \$2.00.

This study investigated the effects of four practice-rest conditions on performance scores obtained with the School of Aviation Medicine complex coordination test. The report of cooperative research of the Department of Psychology, Army Air Forces School of Aviation Medicine, Randolph Field, Texas, and the Department of Psychology, State University of Iowa, was conducted by means of equipment and procedures provided by the Army Air Forces School of Aviation Medicine and a grant-in-aid from the National Research Council Committee on Selection and Training of Aircraft Pilots from funds provided by the civil aeronautics administration. Photograph, tables and graphs are included. Appendices present the following: A—directions for the administration of the School of Aviation Medicine complex coordination test; and B—mean number of matches and cumulative amount of practice.

PB 50341. U.S. NATIONAL RESEARCH COUNCIL. COMMITTEE ON SELECTION AND TRAINING OF AIRCRAFT PILOTS. The history and development of the biographical inventory. (CAA Div. of Res. Rept. 70.) October, 1946. 51 pp. Price: Microfilm, \$2.00; Photostat, \$4.00.

In the development of the biographical inventory an attempt was made to provide for the collection of a wide variety of biographical and personality data, in order that the value of an extensive sample of such information in predicting various aspects of flight proficiency could be determined. Results of various studies in which the inventory has been used are discussed in this report, particularly with reference to findings bearing upon the reliability and validity of the instrument, and upon the correlations of the inventory with other tests. The series of studies described in the report helped to lay the ground work of the cadet selection programme of the United States Navy. The original development of the biographical inventory, begun in 1940, and subsequent modifications in cooperation with the Navy were carried out at Purdue University, under the direction of E. L. Kelly. Tables are included.

PB 50332. U.S. NATIONAL RESEARCH COUNCIL. COMMITTEE ON SELECTION AND TRAINING OF AIRCRAFT PILOTS. The role of fatigue in pilot performance. (CAA Div. of Res. Rept. 61.) May, 1946. 26 pp. Price: Microfilm, \$1.00; Photostat, \$2.00.

This report was prepared by the Committee on Selection and Training of Aircraft Pilots at the request of the Division of Research, Civil Aeronautics Administration, to provide information for use by the Civil Aeronautics Board in considering a request by Transcontinental and Western Air, Incorporated (Appendix I), for a change in regulations pertaining to hours of flight by commercial airline pilots. This review of the literature of fatigue studies, particularly those involving aviation and related industries, was prepared in the main by Lieutenant Commander J. W. Macmillan, U.S.N.R., Division of Aviation Medicine, Bureau of Medicine and Surgery, United States Navy, and Roland E. Johnston. A supplement entitled "Physiological Studies of Fatigue", prepared by Dr. A. C. Williams, Junior, Department of Psychology, University of Illinois, is attached to the report. Appendix I consists of a letter, dated December 7, 1945, from Transcontinental and Western Air, Incorporated, Kansas City, Missouri, to the Civil Aeronautics Board, Washington, D.C. Tables, graphs and bibliographies are included. A basic question was whether twelve hours of

¹Supplied by the Information Service of the Council for Scientific and Industrial Research.

long-range flight with one unscheduled stop are more or less fatiguing than eight hours' scheduled flight time on domestic operations calling for a multiplicity of scheduled stops. The paucity of experimental studies involving commercial airline pilots makes it impossible to arrive at definite recommendations, but tentative suggestions are made with respect to the steps that might be taken in connexion with the petition for the application of foreign regulations to domestic long-range operations.

PB 50295. VITELES, M. S., *et alii*. The psychology of learning in relation to flight instruction. (CAA Div. of Res. Rept. 16.) June, 1943. 42 pp. Price: Microfilm, \$1.00; Photostat, \$3.00.

This report presents a chapter issued in advance of its publication in the proposed text on aviation psychology. The chapter is divided as follows: (i) approaches to the problem of learning and learning curves; (ii) measuring progress in flight performance; (iii) trial and error, understanding and insight; (iv) levels of complexity in learning; (v) learning, remembering and forgetting; (vi) motivation in learning; (vii) efficient methods of learning; (viii) transfer of learning; (ix) emotion and the learning process; (x) summary. Several projects aimed at the improvement of training methods are considered in this survey along with other relevant material from laboratory, classroom and industrial plant.

PB M 49831. CHENOWETH, MAYNARD B., AND GILMAN, ALFRED. Studies on the pharmacology of fluoroacetate. II. Action on the heart. No date. 31 pp. Price: Microfilm, \$1.00; Photostat, \$3.00.

Circulatory changes produced in rabbit, cat, pig, goat, horse rhinus and spider monkeys by lethal doses of sodium fluoroacetate were studied. They are probably the result of the following two actions of the drug on the heart: (i) depression of the excitation and conduction systems and the development of myocardial foci of excitation, and (ii) depression of the muscular system. The characteristic response to these actions varies between the species, but remains relatively constant within a given species. Ventricular fibrillation is the cause of death in these species. The action of fluoroacetate is considered to be upon a specific metabolic system unevenly distributed throughout these species. A bibliography of sixteen items and nine sheets of electrocardiograms are attached.

PB M 48273. U.S. WAR DEPARTMENT. Physical therapy for lower extremity amputees. (Tech. Manual 8-283.) June, 1946. 68 pp. Price: Microfilm, \$2.00; Photostat, \$5.00.

The purpose of this manual is to present a standardized programme for physical therapy management. The objectives of physical therapy in the treatment of amputations are: (i) to shrink and toughen the stump; (ii) to give muscle and postural examinations to determine existing defects in regard to muscle weakness, contractures, and faulty segmental alignment of the body as a whole; (iii) to maintain or restore normal range of motion and muscle strength of the affected extremity; (iv) to correct the existing defects before the amputee is fitted with his prosthesis; and (v) to instruct the lower lower extremity amputee in correct technique of walking, making turns, climbing stairs, picking up objects *et cetera*. Also bandaging and therapeutic exercises are dealt with in detail.

PB M 50342. DUBOIS, KENNETH P., AND MANGUN, GEORGE H. Effect of hexaethyl tetraphosphate on choline esterase *in vitro* and *in vivo*. No date. 7 pp. Price: Microfilm, \$1.00; Photostat, \$1.00.

This study was conducted at the University of Chicago Toxicity Laboratory under contract with the Chemical Corps, U.S.A. Hexaethyl tetraphosphate (HTP) exerts a strong inhibitory effect on mammalian (rat) and insect (cockroach) cholinesterase *in vitro* and *in vivo*. Inhibition of cholinesterase *in vivo* was demonstrated by administering hexaethyl tetraphosphate intraperitoneally to rats and then measuring the cholinesterase activity of the brain, submaxillary glands and serum by an *in-vitro* test system.

PB M 52264. BULLOCK, T. H., *et alii*. Effect of di-isopropyl fluorophosphate (DFP) on action potential and cholinesterase of nerve. II. No date. 43 pp. Price: Microfilm, \$1.00; Photostat, \$3.00.

Studies on the correlation of the effects of di-isopropyl fluorophosphate (DFP) on the action potential and cholinesterase activity have been extended to the giant fibres of the stellate nerve of squid and to the fin nerve. The effects of a range of concentration of DFP have been studied in these nerves and in the lobster cord. The technique of the experiments has been modified to permit continuous recording of the action potential of the nerves during exposure to and recovery from the compound. The correlation established between the presence of cholinesterase and the electrical activity of the nerves of the squid and lobster has been extended to the case of the bullfrog and frog

scatic nerves. Two hours after injection of massive doses of DFP into the animals, cholinesterase was still present in the nerves. The presence of the cholinesterase was demonstrated by the method of bioassay. A bibliography of seven items, five tables and six figures are attached. This work was carried out under a contract between the Medical Division, Chemical Corps, U.S. Army, and Columbia University.

PB L 52333. FILLER, A. S., *et alii*. The pressure distribution in the auditory canal in a progressive sound field. (Harvard University Psycho-Acoustic Lab. Psycho Navy Res. Rept. PNR-5.) December, 1945. 79 pp. Price: Microfilm, \$2.00; Photostat, \$6.00.

The object of this is twofold. First, to determine experimentally the variation, as a function of frequency, of the sound pressure along the auditory canal of a number of subjects placed in a progressive sound field. A small probe microphone was inserted at various positions along the length of the auditory canal. The subjects were placed in the sound field of a loudspeaker in a room free of acoustic reflections from the walls (anechoic chamber). They were oriented at various azimuths with respect to the source of sound. The second object was to determine the obstacle effect of the human head and the auditory canal in a progressive sound field. The ratio of the sound pressure at the eardrum to the free-field sound pressure at the centre of the observer's head was taken to be a measure of this effect. This ratio was determined for a number of subjects, male and female, as a function of frequency and azimuth. Test procedure is outlined in detail; photographs and diagrams are included. Test results are presented in charts and graphs.

PB A 52318. FRUTON, JOSEPH S. On the proteolytic enzymes of animal tissues. V. Peptidases of skin, lung and serum. No date. 42 pp. Price: Microfilm, \$1.00; Photostat, \$3.00.

Saline extracts of rabbit skin contain several proteolytic enzymes (dermopeptidase, leucine aminopeptidase and prolidase). Extracts of rabbit lung contain an enzyme which hydrolyzes L-leucyl glycyl glycine and which is related to dermopeptidase. Rabbit serum hydrolyzes benzoylglycylamide through the action of a hitherto unidentified proteolytic enzyme. A bibliography of 27 items and nine tables are attached. This document is from the Department of Physiological Chemistry, Yale University, and the Laboratories of the Rockefeller Institute for Medical Research; a portion of the research carried on at the latter was done under contract with the OSRD.

PB M 52281. KINDRED, JAMES E. A quantitative study of the histologic changes in the haemopoietic organs of the albino rat after injection of beta chloroethyl vesicants. No date. 68 pp. Price: Microfilm, \$2.00; Photostat, \$5.00.

This study was conducted at the Anatomical Laboratory, University of Virginia, under contract with the Medical Division, Chemical Warfare Service. In young adult albino rats intravenously injected with lethal doses of sulphur mustard (bis [beta chloroethyl] sulphide) and the nitrogen mustards (ethyl bis and methyl bis [beta chloroethyl] amines and tris [beta chloroethyl] amine), the following changes occurred in the circulating blood and haemopoietic organs: (i) lymphopenia in all groups; (ii) lymphopenia and neutropenia in those injected with methyl bis (beta chloroethyl) amine; (iii) reduction in the weight and amount of lymphoid tissue in the thymus, cervical lymph nodes and spleen; and (iv) hypoplasia and hyperemia of the femoral bone marrow. The degenerative changes in the haemopoietic organs as a whole resembled more closely those produced by X rays than by any other agents. A bibliography of 71 items, six tables containing the quantitative data with their standard errors, four charts and 35 photomicrographs.

PB M 50399. WESTON, RAYMOND E., AND KARREL, LEONARD. The influence of denitrogenation on the response of anesthetized dogs to intravenously injected oxygen. No date. 25 pp. Price: Microfilm, \$1.00; Photostat, \$2.00.

This study was carried out in the Toxicology Section, Medical Division, Edgewood Arsenal, Maryland. In dogs which were first denitrogenated and then reinitrogenated by breathing air, the intravenous administration of oxygen produced a rapid, marked drop in arterial oxygen saturation, in some cases even death. In tracheotomized, anesthetized dogs denitrogenated by exposure to 99.6% oxygen for three to four hours the intravenous injection of oxygen for twenty-minute periods produced either an insignificant decrease or no change in arterial oxygen content. Intravenous injection of air instead of oxygen under similar conditions produced a rapid and marked fall in arterial oxygen saturation both before and after considerable lowering of venous nitrogen content had been achieved, despite the marked hyper-ventilation which occurred. A bibliography, one table and ten graphs are attached.

British Medical Association News.

SCIENTIFIC.

A MEETING of the New South Wales Branch of the British Medical Association was held on Thursday, September 25, 1947, at the Robert H. Todd Assembly Hall, British Medical Association House, 135, Macquarie Street, Sydney. Dr. A. C. THOMAS, the Past President, in the chair.

Psychosomatic Medicine.

Dr. A. T. EDWARDS read a paper entitled "Psychosomatic Medicine" (see page 772).

Dr. D. M. ROSS read a paper entitled "Psychosomatic Medicine" (see page 774).

Dr. T. M. GREENAWAY, in opening the discussion, said that he would like to pay tribute to the method of presentation of the two papers. He was particularly impressed by Dr. Edwards's elegant summary of an extensive subject. Dr. Greenaway had known beforehand a little of what Dr. Ross was going to talk about and had not been disappointed. Dr. Greenaway thought that psychosomatic medicine represented at last some recognition on the part of physicians of the existence of psychiatrists. He himself was a product of those years when a few hours in the out-patient department served the student for psychiatric tuition, and when as a student or later as a registrar or as an honorary officer, one failed to detect a lump, a bump, a murmur or a high sphygmomanometer reading, the patient was cast into outer darkness with bromide. A few years previously, with a few notable exceptions, psychiatrists were thought to be simply those people who were prepared to put up with these patients for a longer period than they were tolerated by the general practitioner. It was small wonder that appreciation of the usefulness of psychiatric practice and of psychiatrists in general did not come until later. Dr. Greenaway remembered referring a difficult patient, some twelve years earlier, to a psychiatric colleague who referred the patient back to him with a few well chosen comments and also with the question whether or not he had examined the left upper lung field with X rays. He had then realized that psychiatrists knew something about general medicine. Dr. Greenaway said that having sat at the feet of the masters of psychiatry he wished to emphasize that psychosomatics was nothing new. Professor Dawson had unearthed a paper written some fifty years previously, and there were others, but the point was that practising physicians had at least learned the importance of the psyche in disease. All practitioners, fifty years before, had apparently realized the importance of psychotherapy and the power of suggestion, and were better able to carry it out because of a broader education as they did know something about the humanities and something about their fellow man. In those days the patient always accepted as gospel every word the doctor uttered, whereas nowadays the patients wanted an explanation and were better informed through the medium of the radio, various literary digests *et cetera*. However, the practitioner had to be very careful in his approach lest he himself suggested the disease to the patient. Dr. Greenaway was convinced that it was not an exaggeration to say that some of the profession were responsible for at least 30% of the post-war pensions. If nothing else was learned from the papers except Dr. Ross's injunction about careful history taking and Dr. Edwards's remarks not to make any positive suggestions of disease to an extremely impressionable patient, some advance would have been made. Dr. Greenaway thought that even now some patients still regarded the doctor with a certain amount of awe which dated from the time of his priestly forefathers. Dr. Greenaway, in discussing iatrogenic disease, said that he was careful to remind students of the centipede who

was happy quite,
Until a toad in fun,
Said, "Pray, which leg comes after which?"
Which wrought his mind to such a pitch
He lay distracted in a ditch,
Not knowing how to run.

Dr. Greenaway thanked the speakers for their interesting papers.

Dr. NEVILLE DAVIS said that he wished to thank the two speakers. He had sat at the feet of Dr. Scot Skirving and agreed with the last speaker that there was nothing new in psychosomatic medicine. Dr. Davis mentioned the old "horse and buggy doctor" who knew a great deal of the family history and psychogenetic surroundings of the family long before the day of X rays, of test tubes and of the laboratory.

He thought that in those days diagnosis and treatment were probably not so scientific, but they were no less successful than today when the aid of the highly specialized sciences was available. In his opinion psychiatry had its place in all treatment, but he did not think it should be over-emphasized. There were many patients whom practising clinicians saw day after day, week after week, who could not be classified according to any definite syndrome or disease described in textbooks, but who had alteration of the function of various organs, producing symptoms which led to a belief that a great number of such symptoms were the result of environmental and other causes and had to do with factors which were not strictly medical, but yet had a bearing on the illnesses produced. Dr. Davis expressed indebtedness to the two speakers for emphasizing the value of history taking. When he was at the Mayo Clinic, he had made a survey of the number of people who arrived there with histories of neurosis and psychoneurosis, and he had been amazed at the number who came with letters from doctors in America, some of them specialists, who had failed to clear up the symptoms which these patients had exhibited. When the patients were thoroughly investigated and physically examined, and when the history was carefully taken, there were very few who could be said to be in a state of neurosis. Dr. Davis thought that the investigation of the blood chemistry, as well as of the environmental factors of such people, was extremely important. He recalled two patients of the same age with tuberculosis. Radiologically and clinically they had the same disease, but one man was unmarried with no worries and could be sent away, while the other was married with three children and very soon his financial resources dried up and he died within eighteen months. The psychogenic factors in these two cases had played a great part.

Dr. M. O'HALLORAN said that he would like to say a few words in defence of the present-day practitioner. Dr. Greenaway had spoken of the old general practitioner who knew his patients. Dr. O'Halloran pointed out that while the old practitioner did not have the scientific improvements such as those associated with the test tube and the electrocardiogram, he also was not cursed with two of the present-day improvements—the devaluation of the pound and the telephone. These two factors made general practice very difficult for those who desired a better knowledge of the patient and wished to take long histories from each patient. Dr. O'Halloran contended that if these two "advantages" were cut out it would be possible to use the test tube, the X-ray examination and the electrocardiogram much less frequently.

Dr. J. D. RUSSELL asked if he might be permitted to reminisce a little. He recalled that quite a few years earlier he and Dr. Ross had commenced the study of medicine together; they had graduated together, and had shared the same room as "residents". In those days they thought they knew quite a lot about the "soma", but would have readily admitted that their combined knowledge of the "psyche" would not have filled the proverbial teaspoon. From 1943 to 1945 Dr. Russell was in England and had the opportunity of meeting many young English graduates and found that they graduated in much the same way—knew quite a lot about physical medicine, but were quite incapable of assisting the average patient with his emotional difficulties. It was disturbing to discover in conversation with graduates of recent vintage that the clinical teaching of medicine was still, as in the speaker's day as a student, indifferent to the claims of psychological medicine. Dr. Russell said that he was stationed at an Air Force Central Medical Board in London during the war and had dealings with many well-known English physicians, more particularly in endeavouring to appraise aircrew who were unable to stand up to the stress of their flying duties. In such cases the approach should surely be a psychosomatic one, but he noted the fervent desire to regard asthma or a peptic ulcer conventionally and let it go at that. The main trouble was, in his opinion, despite what Dr. Greenaway had said, that the physicians on whom must fall the main responsibility of clinical teaching failed to direct their students' attention to the all-important psychological background of their patients. Unless there was some real approach to this very urgent aspect of clinical teaching, it was mere lip service to talk of psychosomatic medicine. Dr. Russell said that he thoroughly agreed with the speakers.

Dr. F. A. E. LAWES said that he wished to express appreciation of both speakers, to Dr. Edwards for a moderate and able exposition and to Dr. Ross for a very practical paper. He pointed out that the types of papers read were very valuable because of the personal experience that had been included. Dr. Lawes admitted that he found himself in the category described by Dr. Ross in that the things he did not like doing he did badly. One practical outcome

of the discussion was mentioned by Dr. Russell, who advocated better teaching in the handling of patients. Another point was that he had seen diseases manufactured. He remembered a patient who had *angina pectoris* who had been lectured upon and who had been the subject of a demonstration, the whole case being discussed in front of him. He left hospital improved, but was benefited by reassurance later. One main point Dr. Lawes wished to stress, and that was there should be a closer cooperation in the hospitals between practising physician and hospital psychiatrists; they should both study difficult cases.

Dr. C. M. MCCARTHY said that he thought it would be very profitable if an evening was devoted to psychosomatic surgery. He mentioned an editorial on this subject in *THE MEDICAL JOURNAL OF AUSTRALIA* in July, 1944, and said that it was worth reading again. Dr. McCarthy congratulated the speakers very heartily and said that he had not listened to anything better for a long time. He was very glad to be associated with Dr. Ross at Goulburn Military (Psychiatric) Hospital. He approved of Dr. Ross's reference to the surgery of the vagus nerve.

Dr. KEMPSON MADDOX said that as the person who had suggested the subject of the evening's discussion to the Section of Medicine, he had no need to apologize: the speakers had given an adequate exposition of a difficult subject, and had made some provocative and stimulating remarks. Dr. Maddox said that partly as a result of the war, they were witnessing a swing back from the organic tradition to this form of approach to medical patients. Medical education must of necessity follow this trend, and had already done so in other countries. For example, the student at the University of California had during his final year to interview no more than two or three patients during a whole morning as part of his out-patient work, so that he had time to take an adequate physical and psychological history. Before anything further was done, the student had to consult with the visiting physician and the visiting psychiatrist. Thus the student at that stage of his training began to appreciate the importance of the psychological approach. During his course in psychiatry, instead of listening to lectures on psychoses and psychoneuroses involving unintelligible terms, he attended a psychosomatic conference between psychiatrists and physicians interested in cardio-vascular diseases, in gastro-enterology and in neurology. Sometimes the conference was even attended by surgeons and gynaecologists, who were coming more and more to interest themselves in these matters. The patient's life history was dissected into its component psychic and somatic factors—interpersonal relationships, social and economic influences *et cetera*. One case only was taken per hour. After the student had attended a dozen or so of these conferences he began to appreciate the very things that were felt to be wanting in an Australian medical education, to which Dr. Russell had referred. Dr. Maddox went on to say that recently the Royal College of Physicians in London had appointed a committee to make recommendations as to the furtherance of that form of work. For the graduate, the Post-Graduate Committee in Medicine in the University of Sydney had as yet not done anything in the teaching of psychological medicine to general practitioners and others, but it should be placed on the agenda. General practitioners would find it both interesting and profitable, in spite of their great lack of time, to select a few patients every year on whom they were prepared to spend one, two or three hours in different visits, to attempt to help them by psychotherapeutic means. All that the existing general practitioners could do was to learn the elements of the psychosomatic questionnaire, as described in Stanley Cobb's "Borderlands of Psychiatry" and Weiss and English's "Psychosomatic Medicine". In the past psychiatrists had not contributed as much as they should to the education of the general practitioner. There were some techniques that the general practitioner could apply, and others that could be applied only by psychiatrists. In Sydney an attempt should be made to influence those who had the responsibility for undergraduate education to implement some of the recommendations contained in the report of the Royal College of Physicians, and Dr. Maddox expressed the hope that the General Medical Council would insist on their inclusion in medical schools throughout the Empire.

Dr. C. H. JAEDE said that he was a humble general practitioner from an industrial area. Long previously he had been a resident medical officer at Sydney Hospital. It had been the custom in those days to label a considerable portion of patients as "thinkings", "imaginities", "neurasthenics" and so on. They were sent from the hospital with those tags. That habit of diagnosis persisted for many years in general practitioners. Of late years it had become more apparent through reading and discussion that the effect of the mind

on bodily function was responsible for a great many of the symptoms of these unfortunate people. The general practitioner who saw thirty patients in his waiting room had little time to indulge his desires to endeavour to discover the cause of such symptoms in the absence of organic conditions. He did attempt to use his simple methods, but they were all too time-consuming in the surgery. It had been said by a speaker that at one clinical school two hours were devoted to the consideration of one patient. In the general practitioner's surgery this was impossible. Nevertheless it was important in treating these people. If one could solve their difficulties, they did absent themselves from one's surgery forever afterwards. The older general practitioners needed some education in this matter. Dr. Jaede said that he himself was at a loss as to how to question these people. He came up against a blank wall of ignorance, and did not know how to proceed any further. Also, such practitioners as himself wondered whether they did any harm by their attempts. They needed lessons in the procedure. Dr. Jaede wondered whether it would be possible to prepare a recording of a conversation illustrating the examination of these patients by a skilled psychiatrist. Such a recording would be a great advantage to him; it would give him some idea of how to deal with these patients and solve their difficulties. Dr. Jaede thought that psychosomatic illness were on the increase. Illnesses brought about by high-speed living, family anxiety, economic problems, living with "in-laws", symptoms without any apparent organic basis, were on the increase.

Dr. P. C. P. WAUGH said that a great deal of mud had been thrown on modern medical teaching. He did not think it justified. When a young graduate got away from the groups of twenty students, if he was prepared to talk to his "honorary", then he would find that the disregard of the psyche with which "honoraries" had been credited at the meeting was not real at all; he would be able to learn a great deal if he liked. Dr. Russell's remarks about his student days could not be said to apply to the present clinical teachers. Dr. Jaede had said that it was again the question of time. Dr. Waugh thought that general practitioners were really themselves to blame, because the more one knew about the psychological side, the less time it took to question a patient and get down to the tasks. Dr. Waugh admitted that he had not learnt much of the subject as a student, but said that a great deal could be learnt in the student years, especially in the final years and the resident years, if one was prepared to go out and look for it.

Dr. G. C. WILSON said that he had been working with Dr. Ross during the past year. In one ward they had patients all suffering from proven organic diseases, of which those studied numbered six; asthma, duodenal ulcer, hypertension and diabetes were the main ones. Dr. Wilson said that he had taken the psychiatric histories of twenty diabetic patients. Constant findings in this admittedly small group were a personality and an earlier life history characterized by ineffectual and indecisive behaviour for many years prior to the onset of the disease or its clinical recognition. In all these patients there was evidence of a basic lack of aggression, and consequently they did not tend to express hostility or harbour resentment. They were in general genial, sociable, "easy-going" and amenable to discipline, though having a natural tendency to procrastinate (through indecision). They often had a history of frequent changes of occupation; one of the patients had had 38 jobs in six years. The diabetic also seemed to accept his disease with the spirit of passive optimism in which he had previously accepted life's other reverses. In not a few instances the disease could be seen to represent an excuse for past inadequacies and to be used for the avoidance of present responsibilities. Acute emotional factors had occasionally been observed to cause exacerbations of the disease, either initially or in apparently well-stabilized patients. In one case, for instance, emotional factors had produced (i) diabetic coma (initially), (ii) a severe pre-comatose state after the patient had been stabilized, and (iii) three or four exacerbations of severe degree, which subsided when action was taken to allow the state of tension to dissipate itself. This occurred rapidly and without alteration of the diet or insulin dosage. Dr. Wilson thought that if from the history the glycosuria could be recognized with reasonable certainty to be of psychogenic origin, as in the example he had given, it seemed that treatment by alteration of the diet and insulin dosage would produce several disadvantages. (i) Eventually the period of diabetic instability would be prolonged, as the emotional glycosuria would presumably subside, leaving a further adjustment of diet and insulin dosage to be made later. (ii) It would have become more difficult for the patient to recognize the emotional basis of the glycosuria and to observe the graphic manner in which

"taking action" caused a rapid subsidence of emotional glycosuria—a demonstration which could well be utilized in general psychotherapy. Dr. Wilson went on to say that those emotionally immature patients, in whom the elements described earlier could be adequately demonstrated, thereafter usually began to adopt a more rational approach to environmental difficulties; the sum total of this was a tendency towards more decisive action, with consequently less anxiety and emotional glycosuria. The close relationship between contentment and diabetic stability was stressed, as were the dangers of persistent or sudden glycosuria from other causes.

Dr. Wilson then briefly contrasted the personality types of diabetics and of patients with duodenal ulcers. He said that evidence to date suggested that the personality of diabetics was characterized by a certain passivity or aimlessness. Somewhat in contrast, the duodenal ulcer patient's personality had aggressive traits; there was a keen sense of competition, often apparently based on ideas of real or imaginary hardship in childhood. For example, the patient might be one of a large family or come from the "low" or borderline income group. These patients had often done well at school and at sport, and were conscious of competition for positions of authority and for the love of parents *et cetera*. In later life, great obstacles which threatened their standing in any of these spheres seemed likely to induce anxiety, increased gastro-intestinal activity and the tendency to peptic ulceration. A minor but possibly significant personality difference in these two clinical groups was revealed by the tendency of the more sociable, gregarious diabetics to form clubs and societies to control (and incidentally to preserve) their disease and to educate and assist fellow sufferers. On the other hand, the duodenal ulcer patient tended to become more self-centred with each recurring attack, and if economic insecurity predominated, he might divert some of his aggression to the attainment of "compensation" or pension rights—a pursuit which might become an irradicable obsession. Dr. Wilson said that it was his impression that, more than other clinical groups, duodenal ulcer patients tended readily to become "pension-minded".

Referring to asthmatics, Dr. Wilson said that it appeared from the small number so far studied that there were two groups: (i) an "unwanted" group (often the patient was the eldest of a large family, and his hostility was barely suppressed); (ii) an "over-pampered" group (often the patient was an only child or the youngest member of a large family). In both instances asthma could be taken to represent a protest against a feeling of neglect, real or imagined.

Finally, Dr. Wilson said that he wondered whether psychosomatic investigation might not indeed represent a rather new approach to the investigation of the aetiology of certain diseases, which was at present, to say the least, obscure. So much of the work done so far was based on certain of the concepts of Freud (and these were universally agreed to be in their embryonic stages) that it seemed hardly likely that the present evidence indicating a profound relationship between mind and body preceded the existence of modern psychiatric methods of investigation. The latter, indeed, had been mainly responsible for revealing the basic relationship in an organized form, so that with increasing investigation and evidence a causal connexion gradually appeared.

Dr. Thomas, from the chair, thanked the speakers for their enjoyable papers. He said that after many years of experience he had reached a conclusion on the subject. When a practitioner was young and inexperienced and commencing practice, he had to work hard and see many patients, and as Dr. Jaede had said (and Dr. Ross would no doubt agree), time was the factor. But also when the practitioner was young and inexperienced, he lacked confidence and could not gain the confidence of the patient. It was only as he grew older and was able to look at his patients more objectively that he was able to see through many of their little worries and trials and tribulations. His experience of life then helped him to form opinions, which he could not do when he was younger. Dr. Thomas found that in later years the medical practitioner was able to detect what might be called the functional element behind many symptoms presented by patients. Sometimes the older man could in this way astound his younger colleague. Many patients were sent along with what seemed to be a surgical condition, the most common being appendicitis. But one was able to point out to the young colleague that the patient was in reality suffering from an anxiety neurosis, or had been in association with someone who had a disease similar to that for which the patient presented himself. Again, the patient might have been given the diagnosis of appendicitis by some other practitioner. One of these factors

was the basis of the condition. In conclusion, Dr. Thomas said that the papers presented had been well worth listening to and everyone present had benefited from listening to them.

Dr. Edwards, in reply, said that one remark had been made by several speakers: "Psychosomatic medicine is no new thing." There was in fact nothing new under the sun, and it would be possible to trace some of the concepts of psychosomatic medicine back at least to Shakespeare. But to think of the approach of the "horse and buggy" doctor to the emotional problems of his patients and to compare it with the approach of psychosomatic medicine at the present time was to disregard all the teachings of the great psychiatric teachers of the century. The "horse and buggy" doctor knew his patients and knew their symptoms; but he could not find out any basis of their psychiatric abnormalities. Education at the present time tended to make young technicians almost from the cradle. Technicians were not going to make good doctors. A knowledge of the humanities was essential to the development of a good physician and especially of a good psychiatrist, who had to deal with the whole field of humanity's problems and needed the widest approach possible. Dr. Edwards then referred to the physician who adopted the emotional approach when instructing students. He said that it was very necessary to make that approach to the patient also before referring the patient to a psychiatrist. If the patient was sent to a psychiatrist with a definite diagnosis of an emotional disorder, then he would not go convinced, as one patient was, that his "heart disease" was due to some abstruse infection of the cardiac nerves. That patient knew all about nerves—that they were like little threads of cotton, and carried something like electricity; but he needed to have some slight knowledge of the illness from which he was suffering. One speaker, referring to teaching, had said that the material was there for the student to search for and find. Dr. Edwards thought that it was difficult for a student to look for things which he did not know existed. Personality, emotion, life situation past and present—all were concerned in the formation of symptoms; until they were stressed, an avoidable responsibility was being cast on the psychiatrists. Dr. Edwards said that in dealing with students in the out-patient department it was necessary to teach them one-twentieth formal psychiatry and nineteen-twentieths approach to ordinary patients. In conclusion Dr. Edwards thanked all the speakers for receiving the two papers in so kindly a fashion; he had hoped for a little more antagonism.

Post-Graduate Work.

THE POST-GRADUATE COMMITTEE IN MEDICINE IN THE UNIVERSITY OF SYDNEY.

PROGRAMME FOR 1948.

THE Post-Graduate Committee in Medicine in the University of Sydney announces the following programme of courses for 1948. Except for those shown in the months of January to the end of May, all dates are tentative only and subject to confirmation. Intending candidates are advised to make early application to the Course Secretary, the Post-Graduate Committee in Medicine, 131, Macquarie Street, Sydney. Telephones: BW 7483, B 4606. Telegraphic and Cable Address: "Postgrad, Sydney."

Diploma Courses.

Anæsthesia.—A course for the diploma in anæsthesia will begin on June 7 and last for six months; it will consist of lectures, demonstrations *et cetera* held mainly during the afternoons.

Dermatology.—A course for Part I of the diploma in dermatology will be held in the afternoons for three months beginning June 15. This will be followed by a six-months Part II course on September 13 with a recess period over December-January.

General Practitioners.—An intensive course for general practitioners will be held for two weeks beginning May 24. This course will be a full-time one and will be followed by a ten-weeks' course consisting of lectures in the mornings and clinical demonstrations in the afternoons to be divided into the following sections: general and special, medicine, surgery, gynaecology, obstetrics and pædiatrics.

Gynaecology and Obstetrics.—A Part I course for the diploma in gynaecology and obstetrics will begin for approx-

mately ten weeks on September 6, all sessions being held in the afternoons. A Part II diploma course will begin on January 19 for twelve weeks. Courses suitable for general practitioners are mentioned above. In addition, a full-time course in gynaecology and obstetrics, also for general practitioners, will be held entirely at the King George V Memorial Hospital for Mothers and Babies for two weeks beginning August 30. Short post-graduate residencies may be arranged at the Women's Hospital, Crown Street, or at the Royal Hospital for Women, Paddington, for which due notice is required.

Laryngology and Otorhinology.—Part-time courses for Parts I and II of the diploma in laryngology and otorhinology will begin on September 6 (ten weeks) and January 19 (twelve weeks) respectively.

Medicine.—Apart from short full-time courses in general medicine included in the course for general practitioners, two part-time courses in advanced medicine suitable for M.R.A.C.P. candidates will be conducted for twelve weeks beginning January 19 and June 15.

Medical Statistics.—On the second Wednesday of each month, seminars in medical statistics are held at 5.45 p.m., at the School of Public Health and Tropical Medicine, University Grounds. A course in medical statistics, consisting of twelve lectures in the late afternoons, will begin on February 12 until April 22. This course, applied to experimental data in medicine, has been designed to give an introduction to workers in the medical sciences who have previously not had an opportunity to become familiar with statistical techniques.

Public Health and Tropical Medicine.—A course for the diploma in public health will begin on March 15 for nine months. This will be a full-time course and application to attend should be made to the Director, School of Public Health and Tropical Medicine, University Grounds, Sydney. A four-months' full-time course for the diploma in tropical medicine will begin at the school on February 16. Application to attend should be addressed to the Director.

Ophthalmology.—A part-time course for Part I of the diploma in ophthalmology will begin on September 6 for approximately ten weeks. A course for Part II will begin on January 19 for twelve weeks, consisting of afternoon sessions only.

Clinical Pathology.—A course for the diploma in clinical pathology will begin for approximately six months on July 12, consisting of lectures on three days in each week.

Psychological Medicine.—A Part I course for the diploma in psychological medicine will begin on March 15 for approximately nine months. A Part II course will not begin before late March.

Radiology.—Courses for the diplomas in diagnostic and therapeutic radiology will begin for nine months on March 22. Arrangements may be made for students to be allotted for practical work over a period of twelve months in the radiological departments of hospitals recognized for the diplomas.

Surgery.—A course for Part I of the degree of master of surgery, consisting of afternoon lectures in anatomy, biochemistry and physiology, will begin on September 6 for approximately ten weeks. A part-time course for Part II of this degree will begin on January 19 for twelve weeks. Short full-time courses in surgery are also included in the course for general practitioners.

The Post-Graduate Committee reserves the right to limit the number of enrolments in any course. Copies of the by-laws and regulations of the University of Sydney governing any of the above degrees or diplomas, with the exception of the diplomas in public health and tropical medicine, may be obtained on application to the Course Secretary. With the above exception, examinations are usually conducted once a year in April-May and application must be made to the Dean of the Faculty of Medicine for permission to sit.

Country Courses.

Requests have been received for post-graduate week-end courses to be held during 1948 at the following centres: Armidale (March 6 to 7), Katoomba (April 10 to 11), Broken Hill (June 12 to 13), Wollongong (July 17 to 18), Taree (September 11 to 12), Parramatta (October 16 to 17), Newcastle (October 23 to 24) and at Orange and Wagga Wagga.

Annual General Course.

The annual general course includes attendance at lectures in Sydney given by visiting overseas lecturers, and by

Australian lecturers and at regular monthly film screenings. Yearly subscription is £1 1s.

Correspondence Courses.

Course for general practitioners, consisting of twenty-six fortnightly dossiers covering all branches of medicine and surgery will be held. Fee: £5 5s.

Early in the new year a course in advanced medicine suitable for general practitioners will begin, consisting of reprints and extracts of current articles of medical interest. Fee: £10 10s.

Special Correspondence.

LONDON LETTER.

FROM OUR SPECIAL REPRESENTATIVE.

"Here Comes the Bride."

WITH the exception of the inhabitants of one seaside town, where a faulty transmission cable put most wireless sets temporarily out of action, there can have been few people who did not hear part, if not all, of the wedding ceremony in the Abbey on November 20. The British Broadcasting Corporation put up a fine show and deserve all the eulogies they have received, and it was all the more to their credit as they are in the middle of celebrating their twenty-fifth birthday. All the top commentators were on the job and we heard the names and voices of people, who report not only from places in this country, but from any part of the world where places or local doings are "news". It is good to learn from cables that reception was equally good overseas and equally appreciated. The wedding was a fine splash of colour in an otherwise somewhat uncertain and gloomy existence and the people took it that way. King George V was fond of referring to the "British family" and the marriage of Princess Elizabeth was regarded as a family affair, not only by all the participants, but also the spectators. The Archbishop of York in his address said that, short of its pageantry, the service was "in all essentials exactly the same as it would be for any cottager who might be married this afternoon in some small country church in a remote village in the Dales". In support of this statement the next morning one enterprising daily paper came out with a full description and photographs of such a wedding, which had taken place the day before in the Primate's own diocese. There were touches of humour, of course. The twelve-year-old King of Iraq, now a schoolboy in England and wearing the schoolboy's ordinary dark blue suit, came out of the Abbey with his equals in rank, and finding proceedings rather dull, wandered down the line of carriages inspecting the horses with much interest. A large policeman thought he had strayed in from the crowd and beckoned the boy over to him, and King and constable stood side by side till the former was recovered by a somewhat flustered equerry.

In comparison with other capital cities, London has so often been called commonplace and drab that the definition has come to be accepted almost as a compliment; when it comes, however, to putting on a pageant, London recognizes no equal. Yet this wedding "though transacted in the bosom of history" was, as *The Times* stresses, "a family event". And the "family", the Empire.

"Hands Across the Sea."

REFERENCE was made in this column (*THE MEDICAL JOURNAL OF AUSTRALIA*, September 6, 1947, page 316) to the intention of the Parent Association to arrange that overseas visiting doctors should (in the felicitous phrase of Sir Hugh Lett) "receive a warm welcome and be made to feel that they are at home and not visitors in a strange land". To implement this project a plan for an Empire Medical Advisory Bureau at the British Medical Association House, London, was submitted to and passed by the Council at a recent meeting (*British Medical Journal*, November 8, 1947, Supplement, page 105). The object of such bureau is "generally to provide a personal advisory service to practitioners visiting the U.K., particularly those from the Dominions and Colonies". The bureau will cost £4000 to £5000 in the first year and probably more in succeeding years. Personnel will consist of a Medical Director, with adequate office accommodation and staff, and the position of director has already been advertised (*British Medical*

Journal, November 8, 1947, page 11, Advertisements *et cetera*). A later issue of the *Journal* (November 22, 1947, page 829) devotes a subleader to the functions of the bureau and stresses the general advisory side, over and above the purely medical aspects. "An important part of the job of the Medical Director will be to see that the newcomer is put in touch with suitable lodgings and hotels, receives information about facilities for sport and travel, and is introduced to medical men in this country who are prepared to offer private hospitality." It is necessary to live in England to know how diverse the needs of visitors can be; recent needs, within the writer's experience, ranged from the finding and engaging of a bed in a maternity hospital, to providing a uniform to be worn at an investiture at Buckingham Palace. This action of the British Medical Association is an expression of the warmth of feeling prevalent here towards men and women from overseas and is exemplified by a sentence in a letter received recently from a British surgeon of international standing: "In difficult times like the present, one realizes as never before how vitally important it is for the members of the British Commonwealth to renew their ancient loyalties, and it is personal contact that counts." The writer adds that it is not a one-way traffic "and I am convinced that the old country as a whole owes much of its continued vigour to the transfusions it regularly receives from the Dominions and notably from Australia and New Zealand". In setting up this bureau the Parent Association has done its part and done it generously; it is up to the Branches overseas to respond to this friendly gesture by seeing that the facilities provided are made full use of. Ways that suggest themselves are publicity abroad and perhaps a note of introduction from the overseas Branch to the Medical Director at British Medical Association House to accompany medical men and women "taking a trip home".

"This Pool of Private Charity."

IN view of the changes which follow the implementation of the *National Health Services Act*, particularly as regards the financial position of hospitals, the statistical summary for last year issued by the King Edward VII Hospital Fund for London is of unusual interest. The total maintenance income of the 161 London Hospitals concerned comes to the record figure of £7,360,000, and of this less than a quarter (the actual figure is 23·8%) comes from the funds of local authorities. Over three-quarters of the income was derived from legacies, patients' payments, voluntary contributions, and similar sources. In view of these figures it is understandable that hospital authorities view with some apprehension what may prove to be an over-riding control of the financial side of the institutions they have managed so successfully in the past. The increased cost of maintenance is stressed and illustrated by a striking example—the cost per bed has risen by over 110% over the period 1938-1946, "actual figures being £233 in 1938 and £490 last year".

Nominations and Elections.

THE undermentioned has applied for election as a member of the New South Wales Branch of the British Medical Association:

Lachlan, William John, provisional registration, 1947 (Univ. Sydney), Royal Prince Alfred Hospital, Camperdown.

The undermentioned have applied for election as members of the South Australian Branch of the British Medical Association:

Cullity, Thomas Brendon, M.B., B.S., 1947 (Univ. Adelaide), 49, Broadway, Nedlands, Western Australia.

Phillips, Alan Dunstan, M.B., B.S., 1947 (Univ. Adelaide), Box 34, Berrl.

The undermentioned have been elected as members of the South Australian Branch of the British Medical Association:

Barlow, Marguerite Mora, M.B., B.S., 1947 (Univ. Adelaide), 36, Portrush Road, Tasmore.

Godfrey, Edward John Owen, M.B., B.S., 1945 (Univ. Adelaide), 17, Davenport Terrace, Hazelwood Park.

O'Brien, John Alexander, M.B., B.S., 1947 (Univ. Adelaide), Royal Adelaide Hospital, Adelaide.

Mellor, Geoffrey Lloyd, M.B., B.S., 1947 (Univ. Adelaide), 5, Bedford Street, Kensington Park.

Books Received.

"A Handbook of Industrial and Institutional Catering", by W. H. Emery, with an Appendix on Special Diets by F. Avery Jones, M.D., M.R.C.P., and L. A. Newell, 1947. London: Baillière, Tindall and Cox. 8½" x 6½", pp. 152, with many illustrations. Price: 12s. 6d.

"Surgery: A Textbook for Students", by Charles Aubrey Pannett, B.Sc., M.D., F.R.C.S.; Second Edition, 1947. London: Hodder and Stoughton, Limited. 9½" x 6½", pp. 782, with many illustrations. Price: 27s. 6d.

Diary for the Month.

JAN. 7.—Western Australian Branch, B.M.A.: Council Meeting.

JAN. 9.—Queensland Branch, B.M.A.: Council Meeting.

JAN. 15.—Victorian Branch, B.M.A.: Organization Subcommittee.

JAN. 19.—Victorian Branch, B.M.A.: Finance, House and Library Subcommittee Meeting.

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

New South Wales Branch (Honorary Secretary, 135, Macquarie Street, Sydney): Australian Natives' Association; Ashfield and District United Friendly Societies' Dispensary; Balmain United Friendly Societies' Dispensary; Leichhardt and Petersham United Friendly Societies' Dispensary; Manchester Unity Medical and Dispensing Institute, Oxford Street, Sydney; North Sydney Friendly Societies' Dispensary Limited; People's Prudential Assurance Company Limited; Phoenix Mutual Provident Society.

Victorian Branch (Honorary Secretary, Medical Society Hall, East Melbourne): Associated Medical Services Limited; all Institutes or Medical Dispensaries; Australian Prudential Association, Proprietary, Limited; Federated Mutual Medical Benefit Society; Mutual National Provident Club; National Provident Association; Hospital or other appointments outside Victoria.

Queensland Branch (Honorary Secretary, B.M.A. House, 225, Wickham Terrace, Brisbane, B.17): Brisbane Associated Friendly Societies' Medical Institute; Bundaberg Medical Institute; Brisbane City Council (Medical Officer of Health). Members accepting LODGE appointments and those desiring to accept appointments to any COUNTRY HOSPITAL or position outside Australia are advised, in their own interests, to submit a copy of their Agreement to the Council before signing.

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THE MEDICAL JOURNAL OF AUSTRALIA



VOL. II.—34TH YEAR.

SYDNEY, SATURDAY, DECEMBER 27, 1947.

No. 26.

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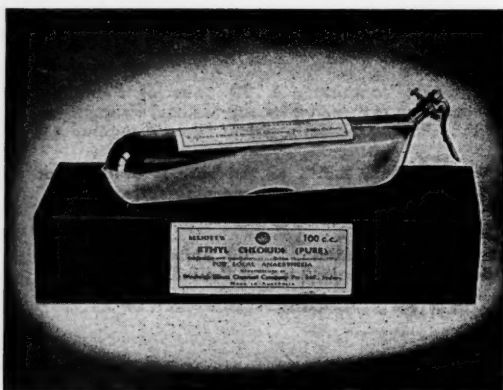
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(1) Lemmon, W. G. (1945), *Petit Mal Epilepsies: Their treatment With Tridione*, *J. Amer. Med. Assn.*, 129:1069, December 15.
(2) DeJong, R. N. (1946), *Effect of Tridione in the Control of Psychomotor Attacks*, *J. Amer. Med. Assn.*, 130:565, March 2.

